THE OHIO STATE UNIVERSITY

The Ohio State University
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Dr. Joseph Kasile, Adviser
Division of Forestry
School of Natural Resources
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Columbus, Ohio

Subject: Determining Optimum Prism Cruising Procedures for Cruising Standing Hardwood Pulpwood

Dear Dr. Kasile,

In satisfying the requirements of the Honors Program of the School of Natural Resources, I am submitting this honors project, concluding the work initiated by my honors proposal on March 30, 1976.

Respectfully submitted,

David C. Cawrse

David C. Cawrse

DETERMINING OPTIMUM PRISM CRUISING PROCEDURES FOR CRUISING STANDING HARDWOOD PULPWOOD

Submitted by,

David C. Cawrse

The Ohio State University
School of Natural Resources
Senior Honors Project
Dr. Joseph Kasile, Adviser
March 7, 1977

ABSTRACT

The preliminary results of this project indicate that a 10 basal area prism is best for hardwood pulpwood cruising. This procedure is found by holding sampling error constant at 10% while letting cost vary with the basal area factor and the number of tree and measurement points in a sampling simulation of an 11.57 acre hardwood stand. Cost is measured in minutes of sampling time, where sampling times are obtained from time and motion studies done in the field.

Since the coefficients of variation for volume-basal area ratios are unrealistically low, no recommendation is made as to the optimum number of tree count and measurement points that need to be taken for a typical prism cruise. Additional studies need to be undertaken which use coefficients of variation obtained from field sampling.

ACKNOWLEDGEMENTS

Special acknowledgement is due Dr. Joseph Kasile for his ideas on the determination of optimum numbers of tree count and measurement points and on the development of the cost function. Use of his data and computer time and his helpful criticism and encouragement are also gratefully acknowledged.

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INTRODUCTION

Justification. Most cruising procedures have been developed for the forests of western and southern United States. However, Ohio does have a significant amount of pulpwood and sawtimber, especially in southern Ohio. With the value of forest products rising, companies want to find the most efficient cruising system for these southern Ohio forests. Discussions with William Lawrence of Mead Corporation of Chillicothe, Ohio, indicate a strong need for this type of study. As this project has immediate application in cruising forests of Ohio, the results are of pragmatic interest as well as academic interest.

Scope. This project is limited to finding the optimum prism cruising procedure for cruising standing hardwood pulpwood. Systematic sampling is used in a variable plot sampling simulation of an 11.57 acre hardwood stand.

Objectives. The objectives of this project are to determine the optimum prism cruising procedures for cruising standing hardwood pulpwood by the following criteria:

1) Optimum number of tree count points and measurement points,
2) Best basal area factor for the prism, and
3) Least expense as determined by labor cost for a fixed level of precision.

REVIEW OF LITERATURE

Although there is little specific literature on current pulpwood sampling techniques, the U.S. Forest Service has published two bulletins on forest sampling (Freese, 1962, 1967). The two basic methods used in forest sampling are fixed plot sampling and variable plot sampling. Fixed plot sampling involves measuring the diameter at breast height of all trees on a fixed radius plot. Variable plot sampling involves counting all trees from a sampling point using an angle guage with a known basal area factor. Aerial photography has also been used in forest sampling.

Variable plot cruising, which this project is concerned with, does not require measurement of the plot radius or tree diameters to compute basal area per acre. Stem counts are made, with each tree tallied contributing equally, without regard to diameter, to the basal area estimate. Diameter, merchantable height, defect, and sometimes form class, are determined for a portion of the sample trees. The volume and basal area of each of these sample trees are calculated as the basis for establishing the volume-basal area ratio. Using the basal area per acre and volume-basal area ratio, the volume per acre can readily be obtained. The following is a summary of steps to follow in making a variable plot cruise (Dillworth, 1975).

Preliminary Procedure

1) Select appropriate wedge prism (factored).
2) Determine the sampling intensity and pattern.

Field Procedure

1) Establish sampling points.

2) Observe all surrounding trees both through and over the wedge prism. If the direct and transmitted images overlap the tree is considered "in" and is counted. These observations must be made at the same point on the tree that is used to compute the volume-basal area ratios.(V-BAR's).

3) Tally the diameter and the volume of the "in" trees on the measured or volume sampling points. Record defect and breakage in percentages for these trees.

Gross Volume Procedure

1) Obtain the sum of V-BAR's.

2) Compute the average V-BAR by dividing the total V-BAR by the number of trees that contributed to the total V-BAR.

3) Compute the number of square feet of stem area per acre at the observation point.

4) Compute gross volume per acre by multiplying the stem area per acre times the average V-BAR.

Net Volume Procedure

1) Reduce each V-BAR obtained in Step 1 of gross volume procedure by the estimated defect and breakage percentage recorded in the field.

2) Proceed as in Steps 2 through 4 for gross volume procedure.

Statistical Analysis (see Appendix II)

1) Determine coefficients of variation.

2) Determine sampling error of the estimated volume (depends on whether all or only part of the sampling points are measured).

In comparing variable plot cruising with fixed plot cruising, Dillworth (1975) notes that variable plot cruising is faster, involves less labor, and is just as precise as fixed plot cruising.

Several sampling systems are used with fixed plot and variable plot cruising. Systematic sampling involves mechanically spacing plots at uniform intervals throughout the tract of land. Simple random sampling, which involves choosing plots so that every possible combination of sample units has an equal and independent chance of being selected, is another system. In stratified sampling, a population is divided into subpopulations of known size whereupon sample units are distributed by either proportional allocation of optimum allocation (Avery, 1967).

Although systematic sampling and random sampling are very similar, Avery (1967) notes that systematic sampling requires less time to use and allows easier location of sample points than random sampling. It should also be noted that while nearly all statistical theory requires random sampling, systematic sampling and the resulting estimates cannot be proven not random (Chaitin, 1975). Thus statistical methods for systematic sampling can be used without worry of violation of statistical theory.

Arvanitis and O'Regan (1969) have published two computer programs on sampling simulation. One is on fixed and variable plot sampling. This program studies the relationship between plot areas or optical angle guages and the parameters (mainly variances) of the sampling distribution of the estimators. The other program concerns cost-effectiveness and sampling efficiency. This program demonstratesthe application of certain concepts of production economics for use in evaluating sampling efficiency of alternative combinations of sample size and basal area factors for given variance and cost functions.

PROCEDURE

The variable plot sampling simulation, written in PL/I, simulates 6, 9, and 16 point prism cruises. Basal area factors of 5, 10, 15, 20, 30, and 40 are used for each cruise. Different sampling errors for tree count and V-BAR's are obtained for each combination of 6, 9, and 16 point cruises and BAF's. Practical number of tree count and measurement points are then determined for a combined sampling error of 10%. Cost is determined using both optimum and practical number of tree count and measurement points.

Development of a variable plot sampling simulation. Using data from a 11.57 acre woodlot, a computer simulation is used to simulate sampling by variable plot cruising methods. The woodlot is a hardwood stand containing 1615 trees, mostly maples. Data on each tree include location in terms of X and Y coordinates (in feet), diameter (in inches), basal area (in square feet), volume (in cubic feet), and height (in feet).

After the program selects a basal area factor, sample points are placed on a stem map. Stem counts are made by simulation of prism observations. At each sample point, volume and basal area are computed and printed for every tree. Volume and basal area are then used as the basis for establishing the volume-basal area ratio. (See Appendix I for program flowchart and also Review of Literature for summary of steps to follow in making a variable plot cruise.)

Determination of Statistics. Volume-basal area ratios (V-BAR's),

average tree counts, basal area (BA), and volume per acre are determined as follows:

V-BAR = (cubic foot volume per tree) / BA.

Average V-BAR = (sum of V-BAR's) / (total number of trees counted).

Average tree count = (total number of trees counted) / (number of sample points).

BA per acre = (basal area factor) X (average tree count).

Average volume per acre = (BA per acre) X (average V-BAR).

Other statistics calculated are standard deviations, sampling errors, and coefficients of variation with respect to tree count and volume-basal area ratios. (See Appendix II for formulation of statistics).

Development of cost function. Costs for walking, counting trees, and measuring trees were obtained from time and motion studies I took in Autumn, 1976. The following costs are measured in crew minutes.

Cost of walking 100' = 30 sec. = .50 min.

Cost of counting 1 tree = 3 sec. = .05 min.

Cost of measuring 1 tree = 10 sec. = .16 min.

Cost of measuring and walking to 1 tree = .16 + (average distance to walk to a tree / 100') X (cost of walking 100').

The cost function is assumed to be of the form:

$$\text{Cost} = C_w \cdot N_c \cdot D_p + C_c \cdot N_c \cdot T + C_m \cdot N_m \cdot T$$

where C_w, C_c, C_m = cost of walking 100', cost of counting a tree, and cost of walking to and measuring 1 tree; N_c, N_m = number of tree count points and number of measurement points; D_p = average distance between sample points; and T = average number of trees observed at each sampling point.

Additional cost variables were assumed to be random in nature and were not included in this study.

Determination of optimum and practical numbers of tree count and measurement points. For a typical cruise, N sample points are taken and n trees are measured. First, sampling errors (SE) for tree count and V-BAR are calculated. Combined SE is held constant at 10%, so SE for tree count and V-BAR must be held at $\sqrt{50\%}$ in order to optimize them. The formulation is:

$$\text{Combined SE\%} = \sqrt{(\text{SE tree count\%})^2 + (\text{SE V-BAR\%})^2} .$$

For optimizing procedures use

$$10\% = ((\sqrt{50\%})^2 + (\sqrt{50\%})^2)^{\frac{1}{2}}.$$

Let $N = A^2 / (\text{SE tree count\%})^2$ and

$$n = B^2 / (\text{SE V-BAR\%})^2$$

where N is the number of sampling points, n is the number of trees measured, A is the known coefficient of variation for tree count, and B is the known coefficient of variation for V-BAR.

Then $N = A^2 / 50\%$ and

$$n = B^2 / 50\%.$$

Solving for N and n, one has the optimum number of tree count points (N_o) and optimum number of trees measured (n_o). The optimum number of measurement points (M_o) equals n_o / (average tree count).

M_o is always rounded up to the nearest integer (M_p) for practical number of tree count points. For example, one cannot measure trees on 1.3 points. This is considered as 2 measurement points for practical purposes. Now forcing this integer M_p back into the equation for com-

bined sampling error, practical number of tree count points can be found. The formulation is as follows:

First find the new average tree count, i.e.

$(\text{average tree count})_{new} = M_p \text{ X } (\text{average tree count})$.

Let $(\text{SE tree count\%})_{new} = (10^2 - (B^2 / (\text{average tree count})_{new}))^{\frac{1}{2}}$

and then practical number of tree count points (N_p) is

$N_p = B^2 / (\text{SE tree count\%})_{new}$.

N_p must also be rounded up to the nearest integer.

Calculations for cost are given for both optimum and practical number of tree count and measurement points.

Construction of a stand table curve. The number of stems in each diameter class is determined for the total acreage in the construction of the stand table. The diameter classes range from 5" - 6.5", 6.5" - 7.5", ..., 20.5" - 21.5", and 21.5"+. The frequencies are obtained for each diameter class through an algorithm put in the main program which counts the number of trees in their respective diameter classes. The final stand curve is constructed by plotting tree frequency vs. diameter class.

RESULTS

Tables I, II, and III list the costs for various combinations of 6, 9, and 16 point cruises with BAF's of 5, 10, 15, 20, 30, and 40. From these tables the cost curve is derived (see Figure 1). Note that minimum cost is achieved with a 10 BAF on a 6 point cruise.

The stand table curve is shown in Figure 2 for the hardwood forest used in the sampling simulation.

Tables for practical number of tree count points and measurement points for 6, 9, and 16 point cruises.

Table I. 6 point cruise.

BAF	Tree count points	Measurement points	Cost
5	7	1	23.22
10	7	1	15.33
15	23	1	27.05
20	28	1	27.19
30	22	1	22.13
40	24	2	22.76

Table II. 9 point cruise.

BAF	Tree count points	Measurement points	Cost
5	7	1	23.69
10	11	1	21.03
15	28	1	30.86
20	15	1	19.77
30	17	2	20.08
40	29	2	25.37

Table III. 16 point cruise.

BAF	Tree count points	Measurement points	Cost
5	8	1	26.69
10	10	1	18.87
15	15	1	20.40
20	19	1	21.34
30	14	2	16.78
40	22	2	20.68

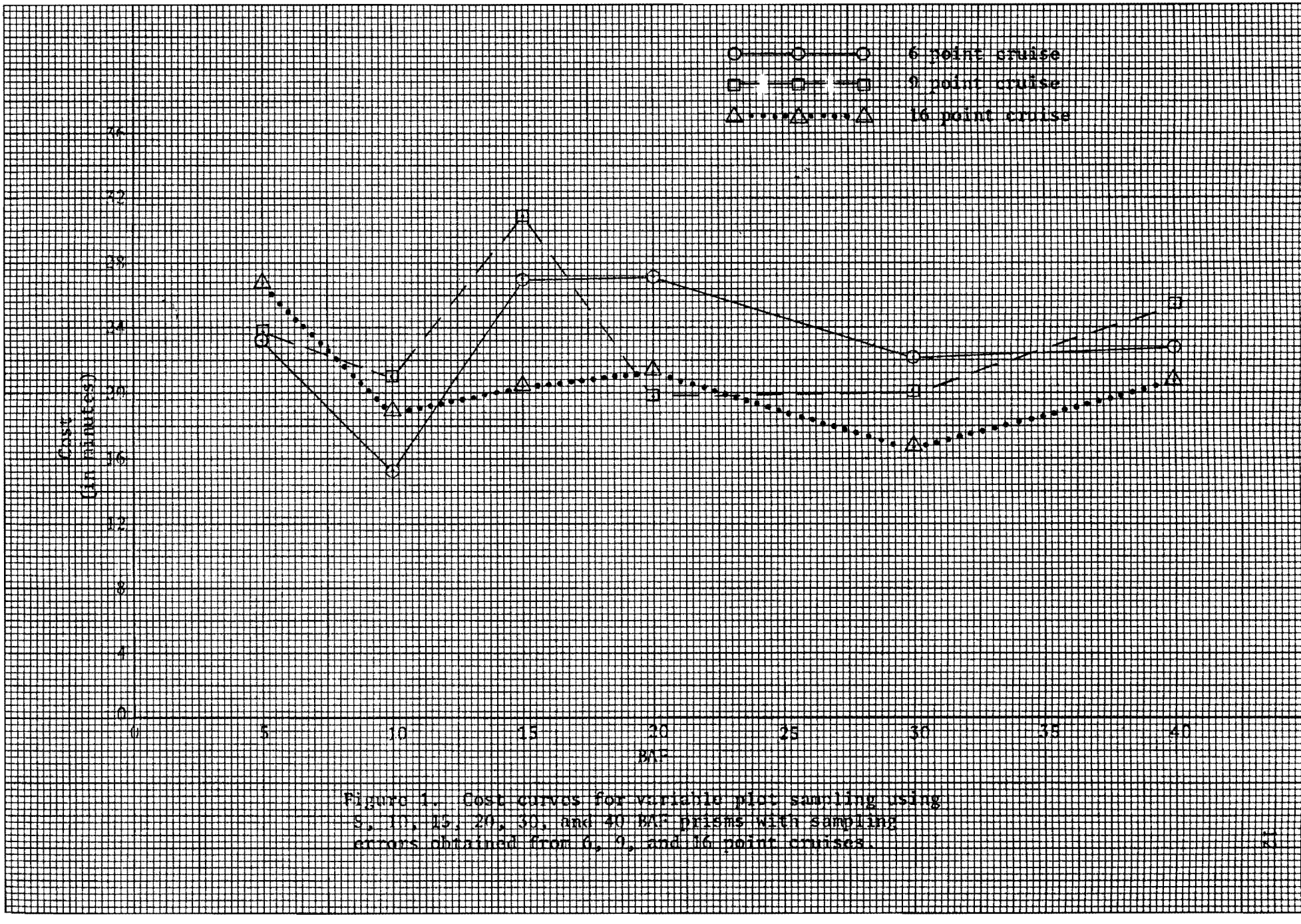

Figure 1. Cost curves for variable plot sampling using 5, 10, 15, 20, 30, and 40 BAF prisms with sampling errors obtained from 6, 9, and 16 point cruises.

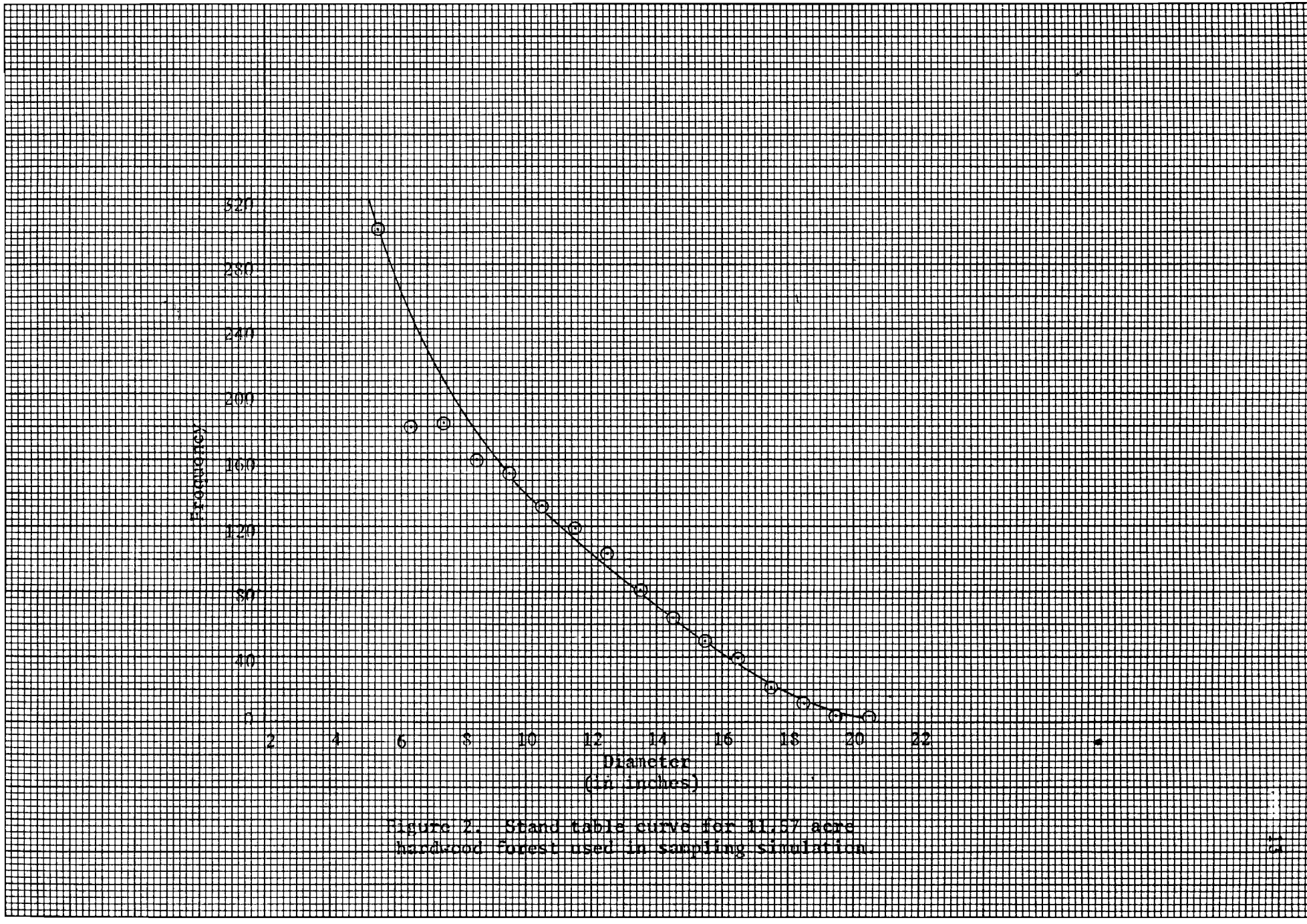

Figure 2. Stand table curve for 11.57 acre hardwood forest used in sampling simulation.

CONCLUSIONS

One can conclude that minimum cost for variable plot cruising the all-age hardwood stand used in this project is achieved by using 7 tree count points and 1 measurement point and a 10 BAF prism. A 10 BAF prism is best for prism cruising in a hardwood stand. The 10 BAF prism generally has the lowest cost for each cruise (see Figure 1).

General conclusions regarding the practical number of tree count and measurement points to be taken on a prism cruise in a hardwood stand should not be made. This is because the coefficients of variation for volume-basal area ratios were found to be unrealistically low. This low variability is due to the fact that data for cubic foot volume were computed from a regression equation involving a high correlation between diameter and cubic foot volume. A higher coefficient of variation for volume-basal area ratios would make it necessary to take more tree count points or more measurement points or both in order to maintain a 10% sampling error. Costs would rise if more tree count points and/or measurement points are taken; however, it is felt that cruising with a 10 BAF prism would still have the lowest cost. Costs for 20,30, and 40 BAF's would increase with increasing coefficients of variation for volume-basal area ratios.

RECOMMENDATIONS

The following are recommendations for future work to be taken regarding this project.

1) Coefficients of variation for volume-basal area ratios obtained from the sampling simulation were unrealistically low. Coefficients obtained from field sampling should be used in the sampling simulation. Conclusions regarding practical numbers of tree count and measurement points would then be more reliable.

2) Arvanitis and O'Regan (1969) have published a sampling simulation computer program for cost effectiveness and sampling efficiency (see Review of Literature). The program requires a variance equation as a function of basal area factors, the constants of which can be obtained from the sampling simulation used in this project. Results from this program, using input from this project, would be interesting.

3) The sampling simulation program used for this project could be written for a more general case. For example, increments along the X and Y axes of the stem map could be used to determine sampling points instead of specifying where sampling points are ahead of time. Also using a plot radius factor would cut down on computer time. The program currently checks to see whether a tree should be sampled if it falls within a 100' square around the sampling point (see Appendix I for program flowchart). This insures every tree that should be sampled will be sampled, although some trees are checked unnecessarily. Using a plot radius factor and obtaining the largest diameter in the stand

(which for this project is 23.4"), the maximum distance a tree can stand from a sampling point using a certain BAF can be found. For this project, the plot radius factor for a 5 BAF is 91.0'; for a 10 BAF it is 64.3'; and for a 40 BAF it is 32.2'. Using a plot radius factor means that no unnecessary trees are checked for sampling, thereby saving computer time.

4) This program can be altered to handle other forest sampling problems. For example, the problem of multiproduct management of wooded lands has a variety of possible solutions. Forest managers need to examine all aspects scientifically to discover the optimum solution.

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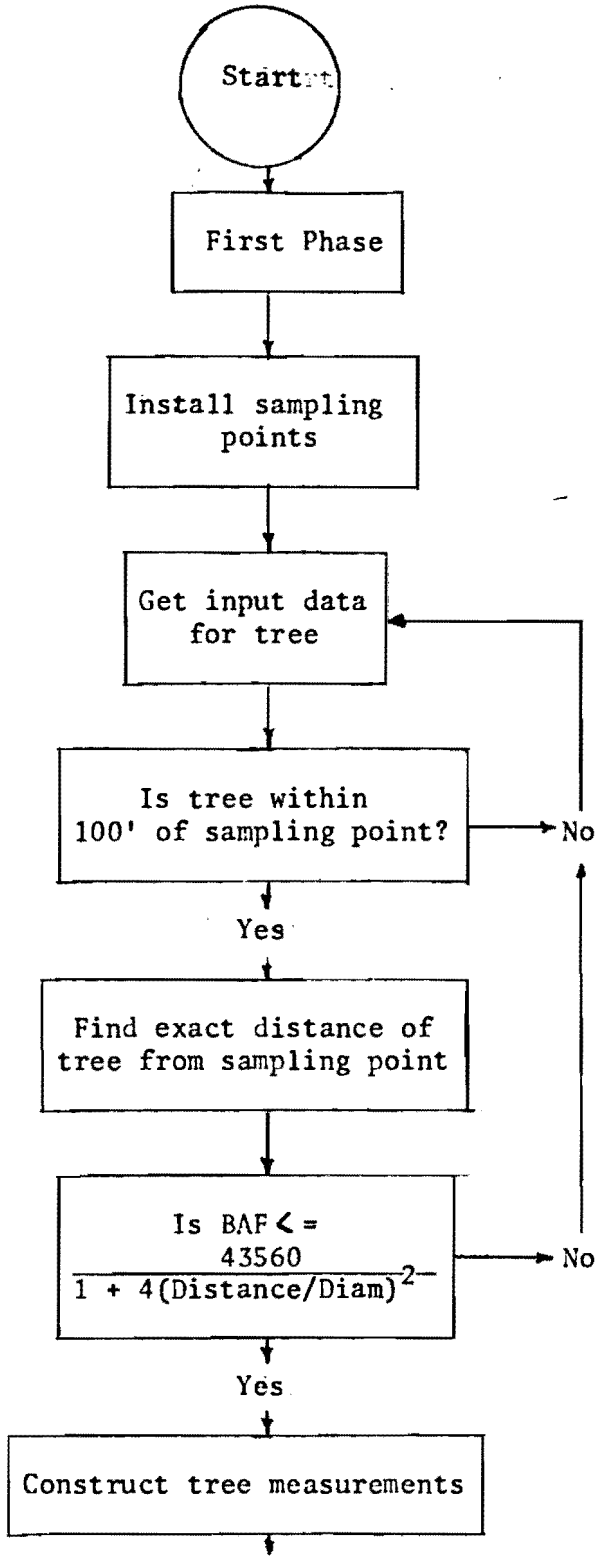
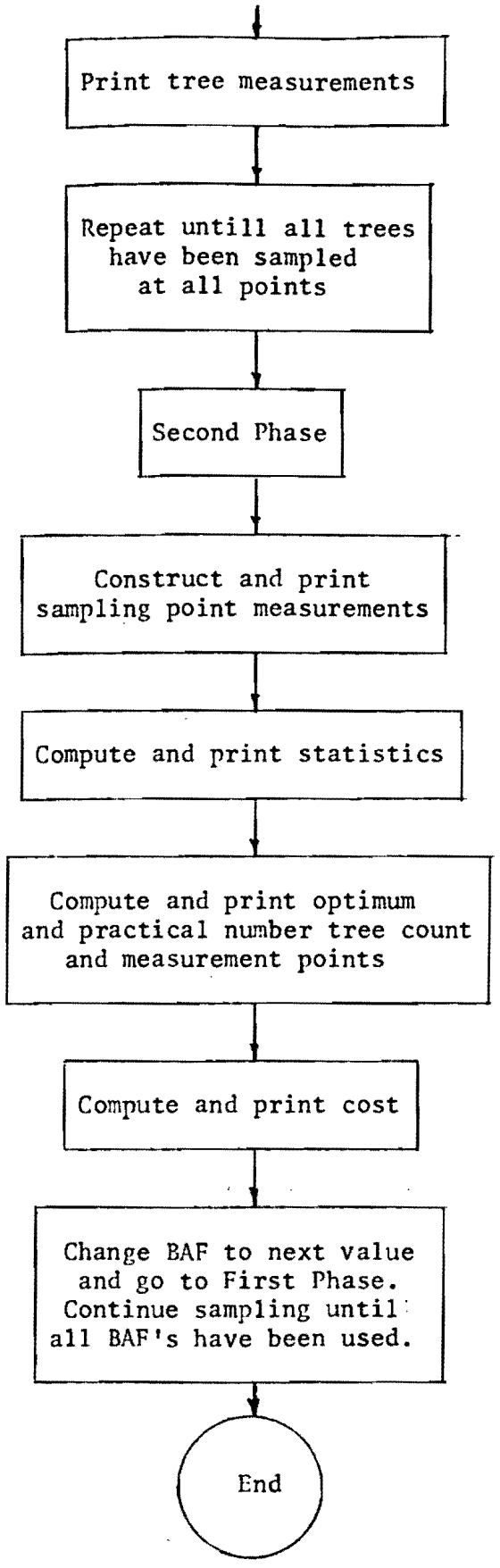
APPENDIX I

PROGRAM FLOWCHART




Print tree measurements
Repeat untill all trees have been sampled at all points
Second Phase
Construct and print sampling point measurements
Compute and print statistics
Compute and print optimum and practical number tree count and measurement points
Compute and print cost
Change BAF to next value and go to First Phase. Continue sampling until all BAF's have been used.
End

APPENDIX II

FORMULATION OF STATISTICS

Definitions:

BA = basal area

TC = tree count

M = total tree count for cruise

N = number of sampling points

BAF = basal area factor

V = volume

Volume-basal area ratio (V-BAR) = (V per tree) / (BA per tree).

Average V-BAR = (sum of V-BARs) / N.

Average tree count = M / N.

BA per acre = BAF X (average TC).

Average volume per acre = (BA per acre) X (average V-BAR).

Total volume = (average V per acre) X (11.57 acres).

For all sampling points taken as measurement points:

Standard error of volume estimate =

$$\left(\left(\sum_{i=1}^{M} \text{V-BAR}^2 - \left(\left(\sum_{i=1}^{M} \text{V-BAR}\right)^2 / N\right) / N \times (N - 1)\right)^{\frac{1}{2}}\right.$$

Sampling error in % (SE%) =

((Standard error of volume estimate) / (average V per acre)) X 100.

Coefficient of variation = (SE%) X $(N)^{\frac{1}{2}}$.

For part of sampling points taken as measurement points:

Standard error of mean tree count =

$$((\sum_{i=1}^{M} TC^2 - ((\sum_{i=1}^{M} TC)^2 / N) / N \times (N - 1))^{\frac{1}{2}}.$$

Standard error of mean V-BAR =

$$((\sum_{i=1}^{N} \text{V-BAR}^2 - ((\sum_{i=1}^{N} \text{V-BAR})^2 / M \times (M - 1))^{\frac{1}{2}}.$$

Sampling error of tree count % (SE TC%) =

((standard error of mean tree count) / (M / N)) X 100.

Sampling error of V-BAR% (SE V-BAR%) =

((standard error of mean V-BAR) / (sum of V-BARs / N)) X 100.

Standard deviation of TC = (standard error mean TC) X $(N)^{\frac{1}{2}}$.

Standard deviation of V-BAR = (standard error mean V-BAR) X $(N)^{\frac{1}{2}}$.

Coefficient of variation of tree count = (SE TC%) X $(N)^{\frac{1}{2}}$.

Coefficient of variation of V-BAR = (SE V-BAR%) X $(M)^{\frac{1}{2}}$.

Combined sampling error TC and V-BAR =

$((\text{SE TC\%})^2 + (\text{SE V-BAR\%})^2)^{\frac{1}{2}}$.

APPENDIX III

DICTIONARY OF IMPORTANT VARIABLES

Definitions:

BA = basal area

BAF = basal area factor

M = total tree count for cruise

N = number of sampling points

TC = tree count

V = volume

PL/I Identifier	Definition
A	Coefficient of variation for TC
AA	Statement label constant
AAA	Statement label constant
AB	Statement label constant
ARATIO	Ratio of optimum number of TC points to optimum number of measurement points (not rounded up to nearest integer)
ARBA	Storage array for input of BA of each tree
ARCUFT	Storage array for input of cubic foot V of each tree
ARDIAM	Storage array for input of diameter of each tree
ARXCO	Storage array for input of X coordinate of each tree

PL/I Identifier	Definition
ARYCO	Storage array for input of Y coordinate of each tree
AVCOUNT	Average TC per sampling point
AVDIST	Average distance of each tree from sampling point
AVVBAR	Average V-BAR
AVVOL	Average V per acre
B	Coefficient of variation of V-BAR
BA	Basal area per tree
BAF	Basal area factor
BAPA	Basal area per acre
BB	Statement label constant
BRATIO	Ratio of optimum number of tree count points to optimum number of measurement points (rounded to nearest integer)
BVCOUNT	(AVCOUNT) X (ROUNVBAR)
C	Combined coefficient of variation
CC	Statement label constant
CM	Cost of measuring a tree
COST	Cost of sampling on one cruise
COUNT	Total TC for cruise
COUNTQ	$(\text{COUNT})^2$
CTC	Cost of counting a tree
CUFT	Cubic foot volume per tree
CVTC	Coefficient of variation for TC

PL/I Identifier	Definition
CVVBAR	Coefficient of variation for V-BAR
CW	Cost of walking 100'
DD	Statement label constant
DIAM	Diameter of each tree
DIST	Distance of a tree from a sampling point
EE	Statement label constant
GG	Statement label constant
NPLOTS	Number of sampling points
NTC	Optimum number of tree count points
NVBAR	Optimum number of measurement points
PNTC	Practical number of tree count points
ROUND	Built-in PL/I function which returns a rounded value for a given number
ROUNVBAR	Practical number of measurement points
SCOUNTQ	Sum of $(TC)^2$ at each sampling point
SE	Standard error
SEP	Sampling error in percent
SETCM	Standard error of mean TC
SETCP	Sampling error of TC in percent
SETCVB	Combined sampling error TC and V-BAR in percent
SEVBARM	Standard error of mean V-BAR
SEVBARP	Sampling error of V-BAR in percent
SMVBAR	Sums V-BARs for all trees

PL/I Identifier	Definition
SPVBAR	Sums V-BAR for trees at one sampling point
SPVBARQ	$(SPVBAR)^2$
STDETC	Standard deviation of TC
STDEVBR	Standard deviation of V-BAR
SUMVBSQ	Sums $(VBAR)^2$
SVBARSQ	Sums $(SPVBAR)^2$
TOTDIST	Sums DIST
TOTVOL	Total cubic foot volume
TREE	Storage array for input data
VBAR	Volume-basal area ratio
VBARSQ	$(VBAR)^2$
WALK	Average distance between each sampling point
XCO	X coordinate of a tree
YCO	Y coordinate of a tree

```
TREES:PROC OPTIONS(MAIN);
/*                                                                    */
/*      THIS PROGRAM IS A SAMPLING SIMULATION OF VARIABLE PLOT        */
/* CRUISING. THE DATA CONSIST OF AN 11.57 ACRE UNEVEN AGED STAND OF   */
/* HARDWOODS. FOR EACH OF THESE 1615 TREES, DATA ARE GIVEN ON TREE    */
/* SPECIES, LOCATION IN X AND Y COORDINATES (IN FEET), DIAMETER (IN   */
/* INCHES), BASAL AREA (IN SQUARE FEET), VOLUME (IN CUBIC FEET),      */
/* AND HEIGHT (IN FEET).                                              */
/*      TO CHANGE THE NUMBER OF SAMPLING POINTS, ONE MUST CHANGE      */
/* THREE CARDS. THEY ARE CARDS IN STATEMENTS 30, 51, AND 52. NPLOTS   */
/* IN STATEMENT 30 REPRESENTS THE NUMBER OF SAMPLING POINTS.          */
/* STATEMENTS 51 AND 52 SPECIFY WHERE THESE POINTS ARE. DUE TO THE    */
/* SETUP OF THE COORDINATE SYSTEM, X MUST LIE BETWEEN 1075' AND       */
/* 1485' AND Y MUST LIE BETWEEN 1100' AND 1715'.                      */
/*                                                                    */
DCL (XCO,YCO,I,J) FIXED(8,1);
DCL 1 TREE,
      2 DIAM FIXED(4,1),
      2 BA FIXED(4,2),
      2 CUFT FIXED(5,2);
DCL(K,H,M,BAF,NPLOTS,NUM) FIXED(5,0);
DCL (DIST) FIXED(8,1);
 DCL ARXCO(1615) FIXED(8,1);
 DCL ARYCO(1615) FIXED(8,1);
 DCL ARDIAM(1615) FIXED(5,1);
 DCL ARBA(1615) FIXED(4,2);
 DCL ARCUFT(1615) FIXED(4,2);
DCL(DIAM,BA,CUFT,VBAR,ROUNVBAR) FIXED(5,2);
DCL COUNT FIXED(5,0) INIT(0);
DCL SMVBAR FIXED(10,2) INIT(0);
DCL(AVVBAR,BAPA,AVVOL,TOTVOL) FIXED(10,2);
DCL SPVBAR FIXED(8,2);
DCL SVBARSQ FIXED(10,2);
DCL SEP FIXED(5,2);
DCL SPVBARQ FIXED(8,2);
DCL SE FIXED(6,2);
DCL C FIXED(5,2);
DCL(VBARSQ,COUNTQ,SETCM,SETCP,SEVBARM,SEVBARP,SETCVB,A,B,ARATIO)
     FIXED(8,2);
DCL BRATIO FIXED(6,0);
DCL (SCOUNTQ,SUMVBSQ) FIXED(10,2);
DCL (CW,CTC,CM,WALK,NTC,NVBAR,COST) FLOAT;
DCL(CVTC,STDETC,STDEVBR,CVVBAR) FIXED(8,2);
DCL(TOTDIST,AVDIST,BVCOUNT) FIXED(10,2);
DCL(ASETC,PNTC) FIXED(8,2);
CW=.5;
CTC=.05;
NPLOTS=12;
AAA:DO H=1 TO 1615;
     GET EDIT(XCO)(COL(14),F(6,1));
     ARXCO(H)=XCO;
     GET EDIT(YCO)(COL(24),F(6,1));
     ARYCO(H)=YCO;
     GET EDIT (TREE.DIAM)(COL(33),F(4,1));
     ARDIAM(H)=TREE.DIAM;
     GET EDIT (TREE.BA)(COL(40),F(4,2));
     ARBA(H)=TREE.BA;
     GET EDIT (TREE.CUFT)(COL(51),F(5,2));
     ARCUFT(H)=TREE.CUFT;
     END AAA;
AB:DO BAF=5,10,15,20,30,40;
     PUT SKIP(10) DATA(BAF);
```

```
    COUNT=0;
    SMVBAR=0;
    SVBARSQ=0;
    SCOUNTQ=0;
    SUMVBSQ=0;
    TOTDIST=0;
AA:DO I=1075,1212,1349,1485;
 BB:DO J=1100,1407.5,1715;
 PUT SKIP(2) LIST('SAMPLE POINT COORDINATES ARE',I,J);
  SPVBAR=0;
  NUM=0;
  CC:DO K=1 TO 1615;
    XCO=ARXCO(K);
    YCO=ARYCO(K);
 IF (((XCO<(I+100)) & (XCO>(I-100))) & ((YCO<(J+100)) & (YCO>(J-100))))
 THEN DD:DO;
    DIST=((((XCO-I)**2)+((YCO-J)**2))**.5);
    DIAM=ARDIAM(K);
    BA=ARBA(K);
    CUFT=ARCUFT(K);
    IF BAF<=((43560)/(1+(576*((DIST/DIAM)**2)))) THEN EE:DO;
    VBAR=CUFT/BA;
    PUT SKIP DATA(DIAM,BA,CUFT,VBAR,DIST);
    COUNT=COUNT+1;
    SMVBAR=SMVBAR+VBAR;
    SPVBAR=SPVBAR+VBAR;
    NUM=NUM+1;
    VBARSQ=VBAR**2;
    SUMVBSQ=SUMVBSQ+VBARSQ;
    TOTDIST=TOTDIST+DIST;
    END EE;
   END DD;
  END CC;
  SPVBARQ=SPVBAR**2;
   PUT SKIP(2) LIST('SUM VBAR SQUARED =',SPVBARQ);
  SVBARSQ=SVBARSQ+SPVBARQ;
  PUT SKIP(2) LIST('RUNNING TOTAL VBAR SQUARED =',SVBARSQ);
  COUNTQ=NUM**2;
  SCOUNTQ=SCOUNTQ+COUNTQ;
 END BB;
END AA;
AVDIST=TOTDIST/COUNT;
AVVBAR=SMVBAR/COUNT;
AVCOUNT=COUNT/NPLOTS;
BAPA=BAF*AVCOUNT;
AVVOL=BAPA*AVVBAR;
TOTVOL=11.57*AVVOL;
SE=(((SVBARSQ-((SMVBAR**2)/NPLOTS))/(NPLOTS*(NPLOTS-1)))**.5)*BAF;
SEP=(SE/AVVOL)*100;
C=SEP*(NPLOTS**.5);
SETCM=(((SCOUNTQ-((COUNT**2)/NPLOTS))/(NPLOTS*(NPLOTS-1)))**.5);
SETCP=((SETCM/AVCOUNT)*100);
SEVBARM=(((SUMVBSQ-((SMVBAR**2)/COUNT))/(COUNT*(COUNT-1)))**.5);
SEVBARP=((SEVBARM/AVVBAR)*100);
CVTC=(SETCP*((NPLOTS)**.5));
STDETC=(SETCM*((NPLOTS)**.5));
STDEVBR=(SEVBARM*((COUNT)**.5));
CVVBAR=(SEVBARP*((COUNT)**.5));
SETCVB=(((SETCP**2)+(SEVBARP**2))**.5);
  A=((NPLOTS**.5)*SETCP);
  B=((COUNT**.5)*SEVBARP);
  PUT SKIP DATA(A,B);
```

```
   NTC=((A**2)/50);
   NVBAR=(((B**2)/50)/AVCOUNT);
   ARATIO=(NTC/NVBAR);
   BRATIO=ROUND(ARATIO,0);
PUT SKIP(3) LIST('TOTAL NUMBER OF TREES SAMPLED =',COUNT);
PUT SKIP(2) LIST('AVERAGE TREE COUNT =',(FIXED(AVCOUNT,5,2)));
PUT SKIP(2) LIST('SUM VBAR =',SMVBAR);
PUT SKIP(2) LIST('AVERAGE VBAR=',AVVBAR);
PUT SKIP(2) LIST('BASAL AREA PER ACRE =',BAPA);
PUT SKIP(2) LIST('AVERAGE VOLUME PER ACRE =',AVVOL);
PUT SKIP(2) LIST('TOTAL VOLUME IN CUBIC FEET =',TOTVOL);
PUT SKIP(2) DATA(CVTC,STDETC,STDEVBR,CVVBAR);
PUT SKIP(2) LIST('STANDARD ERROR =',SE);
PUT SKIP(2) LIST('SAMPLING ERROR % =',SEP);
PUT SKIP(2) LIST('COEFF. OF VARIATION % =',C);
PUT SKIP(2) LIST('STANDARD ERROR OF MEAN TREE COUNT =',SETCM);
PUT SKIP(2) LIST('STANDARD ERROR OF MEAN VBAR =',SEVBARM);
PUT SKIP(2) LIST('SAMPLING ERROR OF TREE COUNT % =',SETCP);
PUT SKIP(2) LIST('SAMPLING ERROR OF VBAR % =',SEVBARP);
PUT SKIP(2) LIST('COMBINED SAMPLING ERROR TC & VBAR % =',SETCVB);
PUT SKIP(2) LIST('OPTIMUM NUMBER OF TREE COUNT POINTS =',
                 (FIXED(NTC,5,2)));
PUT SKIP LIST('OPTIMUM NUMBER MEASUREMENT POINTS =',
                (FIXED(NVBAR,5,2)));
PUT SKIP(2) LIST('RATIO OF TREE COUNT POINTS TO MEASUREMENT POINTS IS',
BRATIO,'TO 1');
ROUNVBAR=NVBAR+.5;
ROUNVBAR=ROUND(ROUNVBAR,0);
BVCOUNT=AVCOUNT*ROUNVBAR;
ASETC=((100-((CVVBAR**2)/BVCOUNT))**.5);
PNTC=(((CVTC/ASETC)**2)+.5);
PNTC=ROUND(PNTC,0);
PUT SKIP(2) LIST('PRACTICAL NUMBER OF TREE COUNT POINTS IS',PNTC);
PUT SKIP LIST('PRACTICAL NUMBER OF MEASUREMENT POINTS IS  ',ROUNVBAR);
PUT SKIP(2) LIST('COST FOR COMBINED SAMPLING ERROR OF 10%');
GG:DO M=1,2;
   IF M=2 THEN DO;
   NTC=PNTC;
   NVBAR=ROUNVBAR;
   END;
   WALK=(((11.57*43560)/NTC)**.5);
   CM=(.16+((AVDIST/100)*.5));
COST=((NTC*(CW*(WALK/100)))+(CTC*(AVCOUNT*NTC))+(CM*(AVCOUNT*NVBAR)));
 IF M=1 THEN DO;
PUT SKIP(2) LIST('OPTIMUM COST =',(FIXED(COST,5,2)));
END;
IF M=2 THEN DO;
PUT SKIP(2) LIST('PRACTICAL COST =',(FIXED(COST,5,2)));
END;
END GG;
END AB;
END TREES;
```

OPTIONS USED

AGGREGATE	NOCOUNT	CHARSET(60,EBCDIC)
ATTRIBUTES	NODECK	NOCOMPILE(S)
GOSTMT	NOESD	FLAG(I)
INSOURCE	NOFLOW	LINECOUNT(62)
LMESSAGE	NOGONUMBER	MARGINI('|')
NEST	NOIMPRECISE	MARGINS(2,72,1)
OBJECT	NOINCLUDE	SEQUENCE(73,80)
OFFSET	NOLIST	SIZE(247504)
OPTIONS	NOMACRO	NOSYNTAX(S)
SOURCE	NOMAP	
STMT	NOMDECK	
STORAGE	NONUMBER	
XREF	NOOPTIMIZE	
	NOTERMINAL	

6 Point Cruise

SOURCE LISTING

```
STMT LEV NT
   1     0  TREES:PROC OPTIONS(MAIN);
            /*                                                          */
            /*      THIS PROGRAM IS A SAMPLING SIMULATION OF VARIABLE PLOT */
            /* CRUISING. THE DATA CONSIST OF AN 11.57 ACRE UNEVEN AGED STAND OF */
            /* HARDWOODS. FOR EACH OF THESE 1615 TREES, DATA ARE GIVEN ON TREE */
            /* SPECIES, LOCATION IN X AND Y COORDINATES (IN FEET), DIAMETER (IN */
            /* INCHES), BASAL AREA (IN SQUARE FEET), VOLUME (IN CUBIC FEET), */
            /* AND HEIGHT (IN FEET).                                    */
            /*      TO CHANGE THE NUMBER OF SAMPLING POINTS, ONE MUST CHANGE */
            /* THREE CARDS. THEY ARE CARDS IN STATEMENTS 30, 51, AND 52. NPLOTS */
            /* IN STATEMENT 30 REPRESENTS THE NUMBER OF SAMPLING POINTS.  */
            /* STATEMENTS 51 AND 52 SPECIFY WHERE THESE POINTS ARE. DUE TO THE */
            /* SETUP OF THE COORDINATE SYSTEM, X MUST LIE BETWEEN 1075' AND */
            /* 1485' AND Y MUST LIE BETWEEN 1100' AND 1715'.            */
            /*                                                          */
   2     1  0  DCL (XCO,YCO,I,J) FIXED(8,1);
   3     1  0  DCL 1 TREE,
                  2 DIAM FIXED(4,1),
                  2 BA FIXED(4,2),
                  2 CUFT FIXED(5,2);
   4     1  0  DCL(K,H,M,BAF,NPLOTS,NUM) FIXED(5,0);
   5     1  0  DCL (DIST) FIXED(8,1);
   6     1  0   DCL ARXCO(1615) FIXED(8,1);
   7     1  0   DCL ARYCO(1615) FIXED(8,1);
   8     1  0   DCL ARDIAM(1615) FIXED(5,1);
   9     1  0   DCL ARBA(1615) FIXED(4,2);
  10     1  0   DCL ARCUFT(1615) FIXED(4,2);
  11     1  0  DCL(DIAM,BA,CUFT,VBAR,ROUNVBAR) FIXED(5,2);
  12     1  0  DCL COUNT FIXED(5,0) INIT(0);
  13     1  0  DCL SMVBAR FIXED(10,2) INIT(0);
  14     1  0  DCL(AVVBAR,BAPA,AVVOL,TOTVOL) FIXED(10,2);
  15     1  0  DCL SPVBAR FIXED(8,2);
  16     1  0  DCL SVBARSQ FIXED(10,2);
  17     1  0  DCL SEP FIXED(5,2);
  18     1  0  DCL SPVBARQ FIXED(8,2);
  19     1  0  DCL SE FIXED(6,2);
  20     1  0  DCL C FIXED(5,2);
  21     1  0  DCL(VBARSQ,COUNTQ,SETCM,SETCP,SEVBARM,SEVBARP,SETCVB,A,B,ARATIO)
                  FIXED(8,2);
  22     1  0  DCL BRATIO FIXED(6,0);
  23     1  0  DCL (SCOUNTQ,SUMVBSQ) FIXED(10,2);
  24     1  0  DCL (CW,CTC,CM,WALK,NTC,NVBAR,COST) FLOAT;
  25     1  0  DCL(CVTC,STDETC,STDEVBR,CVVBAR) FIXED(8,2);
  26     1  0  DCL(TOTDIST,AVDIST,BVCOUNT) FIXED(10,2);
  27     1  0  DCL(ASETC,PNTC) FIXED(8,2);
  28     1  0  CW=.5;
  29     1  0  CTC=.05;
  30     1  0  NPLOTS=6;
  31     1  0  AAA:DO H=1 TO 1615;
  32     1  1      GET EDIT(XCO)(COL(14),F(6,1));
  33     1  1      ARXCO(H)=XCO;
  34     1  1      GET EDIT(YCO)(COL(24),F(6,1));
  35     1  1      ARYCO(H)=YCO;
```

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STMT LEV NT

  36   1  1      GET EDIT (TREE.DIAM)(COL(33),F(4,1));
  37   1  1      ARDIAM(H)=TREE.DIAM;
  38   1  1      GET EDIT (TREE.BA)(COL(40),F(4,2));
  39   1  1      ARBA(H)=TREE.BA;
  40   1  1      GET EDIT (TREE.CUFT)(COL(51),F(5,2));
  41   1  1      ARCUFT(H)=TREE.CUFT;
  42   1  1      END AAA;
  43   1  0  AB:DO BAF=5,10,15,20,30,40;
  44   1  1      PUT SKIP(10) DATA(BAF);
  45   1  1      COUNT=0;
  46   1  1      SMVBAR=0;
  47   1  1      SVBARSQ=0;
  48   1  1      SCOUNTQ=0;
  49   1  1      SUMVBSQ=0;
  50   1  1      TOTDIST=0;
  51   1  1  AA:DO I=1175,1385;
  52   1  2   BB:DO J=1100,1407.5,1715;
  53   1  3   PUT SKIP(2) LIST('SAMPLE POINT COORDINATES ARE',I,J);
  54   1  3    SPVBAR=0;
  55   1  3    NUM=0;
  56   1  3    CC:DO K=1 TO 1615;
  57   1  4      XCO=ARXCO(K);
  58   1  4      YCO=ARYCO(K);
  59   1  4   IF (((XCO<(I+100)) & (XCO>(I-100))) & ((YCO<(J+100)) & (YCO>(J-100))))
               THEN DD:DO;
  60   1  5      DIST=((((XCO-I)**2)+((YCO-J)**2))**.5);
  61   1  5      DIAM=ARDIAM(K);
  62   1  5      BA=ARBA(K);
  63   1  5      CUFT=ARCUFT(K);
  64   1  5      IF BAF<=((43560)/(1+(576*((DIST/DIAM)**2)))) THEN EE:DO;
  65   1  6      VBAR=CUFT/BA;
  66   1  6      PUT SKIP DATA(DIAM,BA,CUFT,VBAR,DIST);
  67   1  6      COUNT=COUNT+1;
  68   1  6      SMVBAR=SMVBAR+VBAR;
  69   1  6      SPVBAR=SPVBAR+VBAR;
  70   1  6      NUM=NUM+1;
  71   1  6      VBARSQ=VBAR**2;
  72   1  6      SUMVBSQ=SUMVBSQ+VBARSQ;
  73   1  6      TOTDIST=TOTDIST+DIST;
  74   1  6      END EE;
  75   1  5     END DD;
  76   1  4    END CC;
  77   1  3    SPVBARQ=SPVBAR**2;
  78   1  3     PUT SKIP(2) LIST('SUM VBAR SQUARED =',SPVBARQ);
  79   1  3    SVBARSQ=SVBARSQ+SPVBARQ;
  80   1  3    PUT SKIP(2) LIST('RUNNING TOTAL VBAR SQUARED =',SVBARSQ);
  81   1  3    COUNTQ=NUM**2;
  82   1  3    SCOUNTQ=SCOUNTQ+COUNTQ;
  83   1  3   END BB;
  84   1  2  END AA;
  85   1  1  AVDIST=TOTDIST/COUNT;
  86   1  1  AVVBAR=SMVBAR/COUNT;
  87   1  1  AVCOUNT=COUNT/NPLOTS;
  88   1  1  BAPA=BAF*AVCOUNT;
  89   1  1  AVVOL=BAPA*AVVBAR;
  90   1  1  TOTVOL=11.57*AVVOL;
```

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STMT LEV NT

   91   1  1  SE=(((SVBARSQ-((SMVBAR**2)/NPLOTS))/(NPLOTS*(NPLOTS-1)))**.5)*BAF;
   92   1  1  SEP=(SE/AVVOL)*100;
   93   1  1  C=SEP*(NPLOTS**.5);
   94   1  1  SETCM=(((SCOUNTQ-((COUNT**2)/NPLOTS))/(NPLOTS*(NPLOTS-1)))**.5);
   95   1  1  SETCP=((SETCM/AVCOUNT)*100);
   96   1  1  SEVBARM=(((SUMVBSQ-((SMVBAR**2)/COUNT))/(COUNT*(COUNT-1)))**.5);
   97   1  1  SEVBARP=((SEVBARM/AVVBAR)*100);
   98   1  1  CVTC=(SETCP*((NPLOTS)**.5));
   99   1  1  STDETC=(SETCM*((NPLOTS)**.5));
  100   1  1  STDEVBR=(SEVBARM*((COUNT)**.5));
  101   1  1  CVVBAR=(SEVBARP*((COUNT)**.5));
  102   1  1  SETCVB=(((SETCP**2)+(SEVBARP**2))**.5);
  103   1  1    A=((NPLOTS**.5)*SETCP);
  104   1  1    B=((COUNT**.5)*SEVBARP);
  105   1  1    PUT SKIP DATA(A,B);
  106   1  1    NTC=((A**2)/50);
  107   1  1    NVBAR=(((B**2)/50)/AVCOUNT);
  108   1  1    ARATIO=(NTC/NVBAR);
  109   1  1    BRATIO=ROUND(ARATIO,0);
  110   1  1  PUT SKIP(3) LIST('TOTAL NUMBER OF TREES SAMPLED =',COUNT);
  111   1  1  PUT SKIP(2) LIST('AVERAGE TREE COUNT =',(FIXED(AVCOUNT,5,2)));
  112   1  1  PUT SKIP(2) LIST('SUM VBAR =',SMVBAR);
  113   1  1  PUT SKIP(2) LIST('AVERAGE VBAR=',AVVBAR);
  114   1  1  PUT SKIP(2) LIST('BASAL AREA PER ACRE =',BAPA);
  115   1  1  PUT SKIP(2) LIST('AVERAGE VOLUME PER ACRE =',AVVOL);
  116   1  1  PUT SKIP(2) LIST('TOTAL VOLUME IN CUBIC FEET =',TOTVOL);
  117   1  1  PUT SKIP(2) DATA(CVTC,STDETC,STDEVBR,CVVBAR);
  118   1  1  PUT SKIP(2) LIST('STANDARD ERROR =',SE);
  119   1  1  PUT SKIP(2) LIST('SAMPLING ERROR % =',SEP);
  120   1  1  PUT SKIP(2) LIST('COEFF. OF VARIATION % =',C);
  121   1  1  PUT SKIP(2) LIST('STANDARD ERROR OF MEAN TREE COUNT =',SETCM);
  122   1  1  PUT SKIP(2) LIST('STANDARD ERROR OF MEAN VBAR =',SEVBARM);
  123   1  1  PUT SKIP(2) LIST('SAMPLING ERROR OF TREE COUNT % =',SETCP);
  124   1  1  PUT SKIP(2) LIST('SAMPLING ERROR OF VBAR % =',SEVBARP);
  125   1  1  PUT SKIP(2) LIST('COMBINED SAMPLING ERROR TC & VBAR % =',SETCVB);
  126   1  1  PUT SKIP(2) LIST('OPTIMUM NUMBER OF TREE COUNT POINTS =',
                 (FIXED(NTC,5,2)));
  127   1  1  PUT SKIP LIST('OPTIMUM NUMBER MEASUREMENT POINTS =',
                (FIXED(NVBAR,5,2)));
  128   1  1  PUT SKIP(2) LIST('RATIO OF TREE COUNT POINTS TO MEASUREMENT POINTS IS',
               BRATIO,'TO 1');
  129   1  1  ROUNVBAR=NVBAR+.5;
  130   1  1  ROUNVBAR=ROUND(ROUNVBAR,0);
  131   1  1  BVCOUNT=AVCOUNT*ROUNVBAR;
  132   1  1  ASETC=((100-((CVVBAR**2)/BVCOUNT))**.5);
  133   1  1  PNTC=(((CVTC/ASETC)**2)+.5);
  134   1  1  PNTC=ROUND(PNTC,0);
  135   1  1  PUT SKIP(2) LIST('PRACTICAL NUMBER OF TREE COUNT POINTS IS',PNTC);
  136   1  1  PUT SKIP LIST('PRACTICAL NUMBER OF MEASUREMENT POINTS IS ',ROUNVBAR);
  137   1  1  PUT SKIP(2) LIST('COST FOR COMBINED SAMPLING ERROR OF 10%');
  138   1  1  GG:DO M=1,2;
  139   1  2    IF M=2 THEN DO;
  140   1  3    NTC=PNTC;
  141   1  3    NVBAR=ROUNVBAR;
  142   1  3    END;
  143   1  2    WALK=(((11.57*43560)/NTC)**.5);
```

```
STMT LEV NT

 144   1  2   CM=(.16+((AVDIST/100)*.5));
 145   1  2  COST=((NTC*((CW*(WALK/100))+CTC*(AVCOUNT*NTC))+(CM*(AVCOUNT*NVBAR))));
 146   1  2   IF M=1 THEN DO;
 147   1  3  PUT SKIP(2) LIST('OPTIMUM COST =',(FIXED(COST,5,2)));
 148   1  3  END;
 149   1  2  IF M=2 THEN DO;
 150   1  3  PUT SKIP(2) LIST('PRACTICAL COST =',(FIXED(COST,5,2)));
 151   1  3  END;
 152   1  2  END GG;
 153   1  1  END AB;
 154   1  0  END TREES;
```

ATTRIBUTE AND CROSS-REFERENCE TABLE

DCL NO.	IDENTIFIER	ATTRIBUTES AND REFERENCES
21	A	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 103,105,106
51	AA	/* STATEMENT LABEL CONSTANT */
31	AAA	/* STATEMENT LABEL CONSTANT */
43	AB	/* STATEMENT LABEL CONSTANT */
21	ARATIO	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 108,109
9	ARBA	(1615) AUTOMATIC ALIGNED DECIMAL FIXED (4,2) 39,62
10	ARCUFT	(1615) AUTOMATIC ALIGNED DECIMAL FIXED (4,2) 41,63
8	ARDIAM	(1615) AUTOMATIC ALIGNED DECIMAL FIXED (5,1) 37,61
6	ARXCO	(1615) AUTOMATIC ALIGNED DECIMAL FIXED (8,1) 33,57
7	ARYCO	(1615) AUTOMATIC ALIGNED DECIMAL FIXED (8,1) 35,58
27	ASETC	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 132,133
********	AVCOUNT	AUTOMATIC ALIGNED DECIMAL /* SINGLE */ FLOAT (6) 87,88,95,107,111,131,145,145
26	AVDIST	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 85,144
14	AVVBAR	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 86,89,97,113
14	AVVOL	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 89,90,92,115
21	B	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 104,105,107
11	BA	AUTOMATIC ALIGNED DECIMAL FIXED (5,2) 62,65,66
3	BA	/* IN TREE */ AUTOMATIC ALIGNED DECIMAL FIXED (4,2) 38,39

DCL NO.	IDENTIFIER	ATTRIBUTES AND REFERENCES
4	BAF	AUTOMATIC ALIGNED DECIMAL FIXED (5,0) 43,43,43,43,43,43,43,43,43,43,43,44,64,88,91
14	BAPA	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 88,89,114
52	BB	/* STATEMENT LABEL CONSTANT */
22	BRATIO	AUTOMATIC ALIGNED DECIMAL FIXED (6,0) 109,128
26	BVCOUNT	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 131,132
20	C	AUTOMATIC ALIGNED DECIMAL FIXED (5,2) 93,120
56	CC	/* STATEMENT LABEL CONSTANT */
24	CM	AUTOMATIC ALIGNED DECIMAL /* SINGLE */ FLOAT (6) 144,145
24	COST	AUTOMATIC ALIGNED DECIMAL /* SINGLE */ FLOAT (6) 145,147,150
12	COUNT	AUTOMATIC ALIGNED INITIAL DECIMAL FIXED (5,0) 1,45,67,67,85,86,87,94,96,96,96,100,101,104,110
21	COUNTQ	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 81,82
24	CTC	AUTOMATIC ALIGNED DECIMAL /* SINGLE */ FLOAT (6) 29,145
3	CUFT	/* IN TREE */ AUTOMATIC ALIGNED DECIMAL FIXED (5,2) 40,41
11	CUFT	AUTOMATIC ALIGNED DECIMAL FIXED (5,2) 63,65,66
25	CVTC	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 98,117,133
25	CVVBAR	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 101,117,132
24	CW	AUTOMATIC ALIGNED DECIMAL /* SINGLE */ FLOAT (6) 28,145
59	DD	/* STATEMENT LABEL CONSTANT */
11	DIAM	AUTOMATIC ALIGNED DECIMAL FIXED (5,2) 61,64,66
3	DIAM	/* IN TREE */ AUTOMATIC ALIGNED DECIMAL FIXED (4,1) 36,37

DCL NO.	IDENTIFIER	ATTRIBUTES AND REFERENCES
5	DIST	AUTOMATIC ALIGNED DECIMAL FIXED (8,1) 60,64,66,73
64	EE	/* STATEMENT LABEL CONSTANT */
********	FIXED	BUILTIN 111,126,127,147,150
138	GG	/* STATEMENT LABEL CONSTANT */
4	H	AUTOMATIC ALIGNED DECIMAL FIXED (5,0) 31,31,33,35,37,39,41
2	I	AUTOMATIC ALIGNED DECIMAL FIXED (8,1) 51,51,51,51,53,59,59,60
2	J	AUTOMATIC ALIGNED DECIMAL FIXED (8,1) 52,52,52,52,52,52,53,59,59,60
4	K	AUTOMATIC ALIGNED DECIMAL FIXED (5,0) 56,56,57,58,61,62,63
4	M	AUTOMATIC ALIGNED DECIMAL FIXED (5,0) 138,138,138,138,139,146,149
4	NPLOTS	AUTOMATIC ALIGNED DECIMAL FIXED (5,0) 30,87,91,91,91,93,94,94,94,98,99,103
24	NTC	AUTOMATIC ALIGNED DECIMAL /* SINGLE */ FLOAT (6) 106,108,126,140,143,145,145
4	NUM	AUTOMATIC ALIGNED DECIMAL FIXED (5,0) 55,70,70,81
24	NVBAR	AUTOMATIC ALIGNED DECIMAL /* SINGLE */ FLOAT (6) 107,108,127,129,141,145
27	PNTC	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 133,134,134,135,140
********	ROUND	BUILTIN 109,130,134
11	ROUNVBAR	AUTOMATIC ALIGNED DECIMAL FIXED (5,2) 129,130,130,131,136,141
23	SCOUNTQ	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 48,82,82,94
19	SE	AUTOMATIC ALIGNED DECIMAL FIXED (6,2) 91,92,118
17	SEP	AUTOMATIC ALIGNED DECIMAL FIXED (5,2) 92,93,119
21	SETCM	AUTOMATIC ALIGNED DECIMAL FIXED (8,2)

DCL NO.	IDENTIFIER	ATTRIBUTES AND REFERENCES
		94,95,99,121
21	SETCP	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 95,98,102,103,123
21	SETCVB	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 102,125
21	SEVBARM	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 96,97,100,122
21	SEVBARP	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 97,101,102,104,124
13	SMVBAR	AUTOMATIC ALIGNED INITIAL DECIMAL FIXED (10,2) 1,46,68,68,86,91,96,112
15	SPVBAR	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 54,69,69,77
18	SPVBARQ	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 77,78,79
25	STDETC	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 99,117
25	STDEVBR	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 100,117
23	SUMVBSQ	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 49,72,72,96
16	SVBARSQ	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 47,79,79,80,91
********	SYSIN	EXTERNAL FILE 32,34,36,38,40
********	SYSPRINT	EXTERNAL FILE PRINT 44,53,66,78,80,105,110,111,112,113,114,115,116,117,118,119,120,121,122,123, 124,125,126,127,128,135,136,137,147,150
26	TOTDIST	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 50,73,73,85
14	TOTVOL	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 90,116
3	TREE	AUTOMATIC /* STRUCTURE */
1	TREES	EXTERNAL ENTRY RETURNS(DECIMAL /* SINGLE */ FLOAT (6))
11	VBAR	AUTOMATIC ALIGNED DECIMAL FIXED (5,2) 65,66,68,69,71
21	VBARSQ	AUTOMATIC ALIGNED DECIMAL FIXED (8,2)

DCL NO.	IDENTIFIER	ATTRIBUTES AND REFERENCES
		71,72
24	WALK	AUTOMATIC ALIGNED DECIMAL /* SINGLE */ FLOAT (6) 143,145
2	XCO	AUTOMATIC ALIGNED DECIMAL FIXED (8,1) 32,33,57,59,59,60
2	YCO	AUTOMATIC ALIGNED DECIMAL FIXED (8,1) 34,35,58,59,59,60

AGGREGATE LENGTH TABLE

DCL NO.	IDENTIFIER	LVL	DIMS	OFFSET	ELEMENT LENGTH.	TOTAL LENGTH.
9	ARBA		1		3	4845
10	ARCUFT		1		3	4845
8	ARDIAM		1		3	4845
6	ARXCO		1		5	8075
7	ARYCO		1		5	8075
3	TREE	1			9	9
	DIAM	2			3	
	BA	2		3	3	
	CUFT	2		6	3	
				SUM OF CONSTANT LENGTHS		30694

STORAGE REQUIREMENTS

BLOCK, SECTION OR STATEMENT	TYPE	LENGTH	(HEX)	DSA SIZE	(HEX)
**TREES1	PROGRAM CSECT	9068	236C		
**TREES2	STATIC CSECT	3064	BF8		
TREES	PROCEDURE BLOCK	9068	236C	31328	7A60

TABLES OF OFFSETS AND STATEMENT NUMBERS

WITHIN PROCEDURE TREES

OFFSET (HEX)	0	8C	94	9C	A2	A8	11E	13A	1B0	1CC	242	25E	2D4	2F0	366
STATEMENT NO.	1	28	29	30	31	32	33	34	35	36	37	38	39	40	41
OFFSET (HEX)	37E	38E	3A0	3E2	3E8	3EE	3F4	3FA	400	406	418	42A	490	496	49C
STATEMENT NO.	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
OFFSET (HEX)	4A2	4BE	4DA	532	5F6	61C	638	650	6F0	718	75A	760	766	76C	772
STATEMENT NO.	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71
OFFSET (HEX)	78A	790	7AC	7AC	7AC	7BC	808	85C	862	8B6	8D6	8DC	8E6	912	91C
STATEMENT NO.	72	73	74	75	76	77	78	79	80	81	82	83	52	84	51
OFFSET (HEX)	932	956	97A	9EC	A58	A76	A94	C34	C70	D10	E30	E88	1008	1044	10E8
STATEMENT NO.	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99
OFFSET (HEX)	118A	122C	12CE	137A	141C	14BE	1500	1532	156C	159C	15BA	160E	168E	16E2	1736
STATEMENT NO.	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114
OFFSET (HEX)	178A	17DE	1832	1874	18C8	191C	1970	19C4	1A18	1A6C	1AC0	1B14	1B94	1C14	1C7E
STATEMENT NO.	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129
OFFSET (HEX)	1CAE	1CD4	1D46	1E1C	1EB2	1ED8	1F2C	1F80	1FBE	1FD0	1FDA	2004	202C	202C	20CC
STATEMENT NO.	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144
OFFSET (HEX)	2160	2190	219A	221A	221A	2224	22A4	22A4	22AE	22C8	22D2	2354			
STATEMENT NO.	145	146	147	148	149	150	151	152	138	153	43	154			

NO MESSAGES PRODUCED FOR THIS COMPILATION

COMPILE TIME 0.04 MINS SPILL FILE: 0 RECORDS, SIZE 4051

OS/360 LOADER

OPTIONS USED - PRINT,MAP,LET,CALL,NORES,NOTERM,SIZE=247808,NAME=**GO

NAME	TYPE	ADDR	NAME	TYPE	ADDR	NAME	TYPE	ADDR	NAME	TYPE	ADDR	NAME	TYPE	ADDR
PLISTART	SD	17E010	**TREES1	SD	17E058	**TREES2	SD	1803C8	PLICALLA	LR	17E016	PLICALLB	LR	17E01A
PLIMAIN	SD	180FC0	IELCGIA	SD	180FC8	IELCGIB	SD	181038	TREES	LR	17E060	SYSPRINT	SD	181078
SYSIN	SD	181098	IBMBPIR1*	SD	1810B8	IBMBPIRA*	LR	1810DA	IBMBPIRB*	LR	1810DC	IBMBPIRC*	LR	1810DE
IBMBSIO1*	SD	1813A8	IBMBSIOA*	LR	1813A8	IBMBSIOB*	LR	1813AA	IBMBSIOC*	LR	1813AC	IBMBSIOD*	LR	1813AE
IBMBSIOE*	LR	1813B0	IBMBSIOT*	LR	181566	IBMBCAC1*	SD	181608	IBMBCACA*	LR	181608	IBMBCTO1*	SD	1818F0
IBMBCTHD*	LR	1818F0	IBMBCTHX*	LR	1818F8	IBMBCTHF*	LR	181900	IBMBCTHP*	LR	181908	IBMBCTHE*	LR	181910
IBMBCWO1*	SD	181B90	IBMBCWDH*	LR	181B90	IBMBCWZH*	LR	181B90	IBMBMYL1*	SD	181D80	IBMBMYLA*	LR	181D80
IBMBMYS1*	SD	181E20	IBMBMYSA*	LR	181E20	IBMBOCL1*	SD	181EB8	IBMBOCLA*	LR	181EB8	IBMBOCLB*	LR	181EBA
IBMBOCLC*	LR	181EBC	IBMBOCLD*	LR	181EBE	IBMBSDO1*	SD	182028	IBMBSDOD*	LR	182028	IBMBSDOC*	LR	18202A
IBMBSDOB*	LR	18202C	IBMBSDOA*	LR	18202E	IBMBSDOT*	LR	1822FE	IBMBSEI1*	SD	1825A0	IBMBSEIA*	LR	1825A0
IBMBSEIT*	LR	18275A	IBMBSFI1*	SD	1827B0	IBMBSFIA*	LR	1827B0	IBMBSFIR*	LR	18286E	IBMBSII1*	SD	1828A0
IBMBSIIA*	LR	1828A0	IBMBSIIB*	LR	1828A2	IBMBSIIC*	LR	1828A4	IBMBSIID*	LR	1828A6	IBMBSIIT*	LR	1828A8
IBMBSLO1*	SD	182AC8	IBMBSLOA*	LR	182AC8	IBMBSLOB*	LR	182ACA	IBMBSPL1*	SD	1831A8	IBMBSPLA*	LR	1831A8
IBMBSPLB*	LR	1831AA	IBMBSPLC*	LR	1831AC	IBMBSXC1*	SD	183478	IBMBSXCA*	LR	183478	IBMBSXCB*	LR	18347A
IBMBSXCC*	LR	18347C	IBMBSXCD*	LR	18347E	IBMBCKO1*	SD	183690	IBMBCKDP*	LR	183690	IBMBCKZP*	LR	183690
IBMBCKDD*	LR	183698	IBMBCKZD*	LR	183698	IBMBERR1*	SD	183810	IBMBERRA*	LR	183810	IBMBERRB*	LR	183852
IBMBERRC*	LR	183E34	IBMBEER1*	SD	183EE0	IBMBEERA*	LR	183EE0	IBMBSCV1*	SD	183EE8	IBMBSCVA*	LR	183EE8
IBMBMBL1*	SD	184128	IBMBMBLA*	LR	184128	IBMBMDL1*	SD	1842F0	IBMBMDLC*	LR	1842F0	IBMBMDLB*	LR	1842F2
IBMBMDLA*	LR	1842F6	IBMBMBS1*	SD	184448	IBMBMBSA*	LR	184448	IBMBMDS1*	SD	184548	IBMBMDSC*	LR	184548
IBMBMDSB*	LR	18454A	IBMBMDSA*	LR	18454E	IBMBEEF1*	SD	184650	IBMBEEFA*	LR	184650			

SYSIN	PR	00

TOTAL LENGTH 6790
ENTRY ADDRESS 17E010

BAF= 5;

SAMPLE POINT COORDINATES ARE 1175.0 1100.0

DIAM=	14.40	BA=	1.13	CUFT=	24.52	VBAR=	21.69	DIST=	18.1;
DIAM=	11.50	BA=	0.72	CUFT=	14.18	VBAR=	19.69	DIST=	9.8;
DIAM=	12.60	BA=	0.86	CUFT=	17.68	VBAR=	20.55	DIST=	36.2;
DIAM=	16.10	BA=	1.41	CUFT=	32.33	VBAR=	22.92	DIST=	56.7;
DIAM=	13.80	BA=	1.03	CUFT=	22.08	VBAR=	21.43	DIST=	38.6;
DIAM=	7.00	BA=	0.26	CUFT=	4.41	VBAR=	16.96	DIST=	27.1;
DIAM=	11.20	BA=	0.68	CUFT=	13.30	VBAR=	19.55	DIST=	23.6;
DIAM=	13.60	BA=	1.00	CUFT=	21.31	VBAR=	21.31	DIST=	51.9;
DIAM=	9.40	BA=	0.48	CUFT=	8.76	VBAR=	18.25	DIST=	36.2;
DIAM=	5.00	BA=	0.13	CUFT=	2.06	VBAR=	15.84	DIST=	6.1;
DIAM=	14.80	BA=	1.19	CUFT=	26.24	VBAR=	22.05	DIST=	17.0;
DIAM=	11.40	BA=	0.70	CUFT=	13.88	VBAR=	19.82	DIST=	36.6;
DIAM=	8.70	BA=	0.41	CUFT=	7.30	VBAR=	17.80	DIST=	27.8;
DIAM=	13.60	BA=	1.00	CUFT=	21.31	VBAR=	21.31	DIST=	43.9;
DIAM=	15.60	BA=	1.32	CUFT=	29.89	VBAR=	22.64	DIST=	40.7;
DIAM=	17.80	BA=	1.72	CUFT=	41.57	VBAR=	24.16	DIST=	55.4;
DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST=	34.0;
DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST=	37.1;
DIAM=	17.30	BA=	1.63	CUFT=	38.70	VBAR=	23.74	DIST=	38.0;
DIAM=	11.80	BA=	0.75	CUFT=	15.08	VBAR=	20.10	DIST=	9.1;
DIAM=	12.40	BA=	0.83	CUFT=	17.01	VBAR=	20.49	DIST=	21.7;

SUM VBAR SQUARED = 190881.60

RUNNING TOTAL VBAR SQUARED = 190881.60

SAMPLE POINT COORDINATES ARE 1175.0 1407.5

DIAM=	17.10	BA=	1.59	CUFT=	37.59	VBAR=	23.64	DIST=	59.6;
DIAM=	17.00	BA=	1.57	CUFT=	37.04	VBAR=	23.59	DIST=	46.0;
DIAM=	16.00	BA=	1.39	CUFT=	31.83	VBAR=	22.89	DIST=	61.5;
DIAM=	11.60	BA=	0.73	CUFT=	14.47	VBAR=	19.82	DIST=	28.6;
DIAM=	10.00	BA=	0.54	CUFT=	10.15	VBAR=	18.79	DIST=	31.3;
DIAM=	13.60	BA=	1.00	CUFT=	21.31	VBAR=	21.31	DIST=	41.4;
DIAM=	13.40	BA=	0.97	CUFT=	20.55	VBAR=	21.18	DIST=	49.7;
DIAM=	15.40	BA=	1.29	CUFT=	28.95	VBAR=	22.44	DIST=	45.9;
DIAM=	11.10	BA=	0.67	CUFT=	13.02	VBAR=	19.43	DIST=	36.7;
DIAM=	11.90	BA=	0.77	CUFT=	15.39	VBAR=	19.98	DIST=	40.0;
DIAM=	15.90	BA=	1.37	CUFT=	31.34	VBAR=	22.87	DIST=	22.5;
DIAM=	13.00	BA=	0.92	CUFT=	19.08	VBAR=	20.73	DIST=	9.8;
DIAM=	16.30	BA=	1.44	CUFT=	33.34	VBAR=	23.15	DIST=	58.0;
DIAM=	12.00	BA=	0.78	CUFT=	15.71	VBAR=	20.14	DIST=	3.5;
DIAM=	8.60	BA=	0.40	CUFT=	7.11	VBAR=	17.77	DIST=	7.2;
DIAM=	10.20	BA=	0.56	CUFT=	10.64	VBAR=	19.00	DIST=	30.9;
DIAM=	12.90	BA=	0.90	CUFT=	18.73	VBAR=	20.81	DIST=	18.2;
DIAM=	18.50	BA=	1.86	CUFT=	45.82	VBAR=	24.63	DIST=	40.4;
DIAM=	8.70	BA=	0.41	CUFT=	7.30	VBAR=	17.80	DIST=	28.6;
DIAM=	15.30	BA=	1.27	CUFT=	28.49	VBAR=	22.43	DIST=	51.3;
DIAM=	19.40	BA=	2.05	CUFT=	51.68	VBAR=	25.20	DIST=	33.8;

SUM VBAR SQUARED = 200345.75

RUNNING TOTAL VBAR SQUARED = 391227.35

SAMPLE POINT COORDINATES ARE 1175.0 1715.0

DIAM=	12.80	BA=	0.89	CUFT=	18.37	VBAR=	20.64	DIST=	22.5;
DIAM=	5.90	BA=	0.18	CUFT=	2.98	VBAR=	16.55	DIST=	3.8;
DIAM=	5.60	BA=	0.17	CUFT=	2.65	VBAR=	15.58	DIST=	3.1;
DIAM=	9.60	BA=	0.50	CUFT=	9.21	VBAR=	18.42	DIST=	35.1;
DIAM=	8.40	BA=	0.38	CUFT=	6.73	VBAR=	17.71	DIST=	20.1;
DIAM=	8.30	BA=	0.37	CUFT=	6.54	VBAR=	17.67	DIST=	24.9;
DIAM=	11.80	BA=	0.75	CUFT=	15.08	VBAR=	20.10	DIST=	33.4;
DIAM=	11.20	BA=	0.68	CUFT=	13.30	VBAR=	19.55	DIST=	16.0;
DIAM=	10.40	BA=	0.58	CUFT=	11.14	VBAR=	19.20	DIST=	37.6;
DIAM=	11.20	BA=	0.68	CUFT=	13.30	VBAR=	19.55	DIST=	43.1;
DIAM=	15.70	BA=	1.34	CUFT=	30.37	VBAR=	22.66	DIST=	43.8;
DIAM=	8.80	BA=	0.42	CUFT=	7.50	VBAR=	17.85	DIST=	28.6;
DIAM=	5.70	BA=	0.17	CUFT=	2.76	VBAR=	16.23	DIST=	17.4;
DIAM=	14.10	BA=	1.08	CUFT=	23.28	VBAR=	21.55	DIST=	44.9;
DIAM=	19.10	BA=	1.98	CUFT=	49.68	VBAR=	25.09	DIST=	42.0;
DIAM=	16.50	BA=	1.48	CUFT=	34.37	VBAR=	23.22	DIST=	44.8;
DIAM=	8.80	BA=	0.42	CUFT=	7.50	VBAR=	17.85	DIST=	22.5;
DIAM=	9.80	BA=	0.52	CUFT=	9.67	VBAR=	18.59	DIST=	16.8;
DIAM=	11.60	BA=	0.73	CUFT=	14.47	VBAR=	19.82	DIST=	17.6;

SUM VBAR SQUARED = 135298.90

RUNNING TOTAL VBAR SQUARED = 526526.25

SAMPLE POINT COORDINATES ARE 1385.0 1100.0

DIAM=	7.80	BA=	0.33	CUFT=	5.66	VBAR=	17.15	DIST=	28.7;
DIAM=	14.60	BA=	1.16	CUFT=	25.37	VBAR=	21.87	DIST=	53.5;
DIAM=	6.80	BA=	0.25	CUFT=	4.12	VBAR=	16.48	DIST=	2.0;
DIAM=	14.90	BA=	1.21	CUFT=	26.68	VBAR=	22.04	DIST=	26.8;
DIAM=	13.00	BA=	0.92	CUFT=	19.08	VBAR=	20.73	DIST=	46.3;
DIAM=	12.90	BA=	0.90	CUFT=	18.73	VBAR=	20.81	DIST=	40.6;
DIAM=	12.00	BA=	0.78	CUFT=	15.71	VBAR=	20.14	DIST=	44.1;
DIAM=	13.30	BA=	0.96	CUFT=	20.18	VBAR=	21.02	DIST=	49.1;
DIAM=	12.30	BA=	0.82	CUFT=	16.68	VBAR=	20.34	DIST=	33.5;
DIAM=	15.00	BA=	1.22	CUFT=	27.12	VBAR=	22.22	DIST=	27.0;
DIAM=	5.90	BA=	0.18	CUFT=	2.98	VBAR=	16.55	DIST=	12.7;
DIAM=	11.70	BA=	0.74	CUFT=	14.78	VBAR=	19.97	DIST=	16.7;
DIAM=	12.90	BA=	0.90	CUFT=	18.73	VBAR=	20.81	DIST=	39.4;
DIAM=	8.10	BA=	0.35	CUFT=	6.18	VBAR=	17.65	DIST=	17.1;
DIAM=	7.40	BA=	0.29	CUFT=	5.01	VBAR=	17.27	DIST=	8.1;
DIAM=	12.80	BA=	0.89	CUFT=	18.37	VBAR=	20.64	DIST=	49.6;
DIAM=	15.30	BA=	1.27	CUFT=	28.49	VBAR=	22.43	DIST=	54.8;
DIAM=	6.40	BA=	0.22	CUFT=	3.59	VBAR=	16.31	DIST=	16.4;
DIAM=	8.10	BA=	0.35	CUFT=	6.18	VBAR=	17.65	DIST=	9.5;
DIAM=	6.50	BA=	0.23	CUFT=	3.72	VBAR=	16.17	DIST=	14.9;
DIAM=	11.60	BA=	0.73	CUFT=	14.47	VBAR=	19.82	DIST=	32.7;
DIAM=	7.80	BA=	0.33	CUFT=	5.66	VBAR=	17.15	DIST=	25.2;
DIAM=	9.60	BA=	0.50	CUFT=	9.21	VBAR=	18.42	DIST=	36.8;
DIAM=	11.30	BA=	0.69	CUFT=	13.59	VBAR=	19.69	DIST=	40.8;
DIAM=	16.10	BA=	1.41	CUFT=	32.33	VBAR=	22.92	DIST=	60.5;
DIAM=	12.60	BA=	0.86	CUFT=	17.68	VBAR=	20.55	DIST=	47.9;
DIAM=	12.60	BA=	0.86	CUFT=	17.68	VBAR=	20.55	DIST=	40.9;
DIAM=	15.10	BA=	1.24	CUFT=	27.57	VBAR=	22.23	DIST=	53.1;
DIAM=	13.60	BA=	1.00	CUFT=	21.31	VBAR=	21.31	DIST=	14.8;
DIAM=	18.20	BA=	1.80	CUFT=	43.97	VBAR=	24.42	DIST=	14.3;

SUM VBAR SQUARED = 354393.99

RUNNING TOTAL VBAR SQUARED = 880920.24

SAMPLE POINT COORDINATES ARE 1385.0 1407.5

DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST=	35.2;
DIAM=	7.60	BA=	0.31	CUFT=	5.33	VBAR=	17.19	DIST=	15.8;
DIAM=	18.20	BA=	1.80	CUFT=	43.97	VBAR=	24.42	DIST=	5.6;
DIAM=	8.00	BA=	0.34	CUFT=	6.00	VBAR=	17.64	DIST=	16.4;
DIAM=	13.80	BA=	1.03	CUFT=	22.08	VBAR=	21.43	DIST=	43.1;
DIAM=	16.00	BA=	1.39	CUFT=	31.83	VBAR=	22.89	DIST=	55.2;
DIAM=	15.40	BA=	1.29	CUFT=	28.95	VBAR=	22.44	DIST=	57.5;
DIAM=	10.70	BA=	0.62	CUFT=	11.92	VBAR=	19.22	DIST=	35.2;
DIAM=	14.40	BA=	1.13	CUFT=	24.52	VBAR=	21.69	DIST=	46.4;
DIAM=	14.30	BA=	1.11	CUFT=	24.10	VBAR=	21.71	DIST=	11.4;
DIAM=	13.40	BA=	0.97	CUFT=	20.55	VBAR=	21.18	DIST=	42.4;
DIAM=	16.00	BA=	1.39	CUFT=	31.83	VBAR=	22.89	DIST=	12.5;
DIAM=	14.60	BA=	1.16	CUFT=	25.37	VBAR=	21.87	DIST=	29.8;
DIAM=	10.40	BA=	0.58	CUFT=	11.14	VBAR=	19.20	DIST=	33.8;
DIAM=	18.00	BA=	1.76	CUFT=	42.76	VBAR=	24.29	DIST=	43.7;
DIAM=	20.40	BA=	2.26	CUFT=	58.73	VBAR=	25.98	DIST=	66.2;
DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST=	51.2;

SUM VBAR SQUARED = 137374.00

RUNNING TOTAL VBAR SQUARED = 1018294.24

SAMPLE POINT COORDINATES ARE 1385.0 1715.0

DIAM=	9.60	BA=	0.50	CUFT=	9.21	VBAR=	18.42	DIST=	34.3;
DIAM=	17.00	BA=	1.57	CUFT=	37.04	VBAR=	23.59	DIST=	64.1;
DIAM=	8.20	BA=	0.36	CUFT=	6.36	VBAR=	17.66	DIST=	28.0;
DIAM=	7.20	BA=	0.28	CUFT=	4.70	VBAR=	16.78	DIST=	19.3;
DIAM=	20.80	BA=	2.35	CUFT=	61.72	VBAR=	26.26	DIST=	54.7;
DIAM=	12.20	BA=	0.81	CUFT=	16.35	VBAR=	20.18	DIST=	15.9;
DIAM=	5.60	BA=	0.17	CUFT=	2.65	VBAR=	15.58	DIST=	6.0;
DIAM=	7.90	BA=	0.34	CUFT=	5.83	VBAR=	17.14	DIST=	21.0;
DIAM=	8.70	BA=	0.41	CUFT=	7.30	VBAR=	17.80	DIST=	30.9;
DIAM=	6.00	BA=	0.19	CUFT=	3.10	VBAR=	16.31	DIST=	15.9;
DIAM=	6.50	BA=	0.23	CUFT=	3.72	VBAR=	16.17	DIST=	21.5;
DIAM=	8.10	BA=	0.35	CUFT=	6.18	VBAR=	17.65	DIST=	20.8;
DIAM=	10.40	BA=	0.58	CUFT=	11.14	VBAR=	19.20	DIST=	38.8;
DIAM=	5.30	BA=	0.15	CUFT=	2.34	VBAR=	15.60	DIST=	16.9;
DIAM=	9.50	BA=	0.49	CUFT=	8.98	VBAR=	18.32	DIST=	34.0;
DIAM=	11.30	BA=	0.69	CUFT=	13.59	VBAR=	19.69	DIST=	43.2;

SUM VBAR SQUARED = 87823.32

RUNNING TOTAL VBAR SQUARED = 1106117.56

A= 24.17 B= 12.02;

TOTAL NUMBER OF TREES SAMPLED = 124

AVERAGE TREE COUNT = 20.66

SUM VBAR = 2514.63

AVERAGE VBAR= 20.27

BASAL AREA PER ACRE = 103.33

AVERAGE VOLUME PER ACRE = 2094.49

TOTAL VOLUME IN CUBIC FEET = 24233.24

CVTC= 24.17 STDETC= 4.99 STDEVBR= 2.44 CVBAR= 12.02;

STANDARD ERROR = 208.61

SAMPLING ERROR % = 9.95

COEFF. OF VARIATION % = 24.37

STANDARD ERROR OF MEAN TREE COUNT = 2.04

STANDARD ERROR OF MEAN VBAR = 0.22

SAMPLING ERROR OF TREE COUNT % = 9.87

SAMPLING ERROR OF VBAR % = 1.08

COMBINED SAMPLING ERROR TC & VBAR % = 9.92

OPTIMUM NUMBER OF TREE COUNT POINTS = 11.68

OPTIMUM NUMBER MEASUREMENT POINTS = 0.13

RATIO OF TREE COUNT POINTS TO MEASUREMENT POINTS IS 84 TO 1

PRACTICAL NUMBER OF TREE COUNT POINTS IS 7.00

PRACTICAL NUMBER OF MEASUREMENT POINTS IS 1.00

COST FOR COMBINED SAMPLING ERROR OF 10%

OPTIMUM COST = 25.12

PRACTICAL COST = 23.22

BAF= 10;

SAMPLE POINT COORDINATES ARE 1175.0 1100.0

DIAM=	14.40	BA=	1.13	CUFT=	24.52	VBAR=	21.69	DIST=	18.1;
DIAM=	11.50	BA=	0.72	CUFT=	14.18	VBAR=	19.69	DIST=	9.8;
DIAM=	11.20	BA=	0.68	CUFT=	13.30	VBAR=	19.55	DIST=	23.6;
DIAM=	5.00	BA=	0.13	CUFT=	2.06	VBAR=	15.84	DIST=	6.1;
DIAM=	14.80	BA=	1.19	CUFT=	26.24	VBAR=	22.05	DIST=	17.0;
DIAM=	15.60	BA=	1.32	CUFT=	29.89	VBAR=	22.64	DIST=	40.7;
DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST=	34.0;
DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST=	37.1;
DIAM=	17.30	BA=	1.63	CUFT=	38.70	VBAR=	23.74	DIST=	38.0;
DIAM=	11.80	BA=	0.75	CUFT=	15.08	VBAR=	20.10	DIST=	9.1;
DIAM=	12.40	BA=	0.83	CUFT=	17.01	VBAR=	20.49	DIST=	21.7;

SUM VBAR SQUARED = 54005.11

RUNNING TOTAL VBAR SQUARED = 54005.11

SAMPLE POINT COORDINATES ARE 1175.0 1407.5

DIAM=	17.00	BA=	1.57	CUFT=	37.04	VBAR=	23.59	DIST= 46.0;
DIAM=	11.60	BA=	0.73	CUFT=	14.47	VBAR=	19.82	DIST= 28.6;
DIAM=	15.90	BA=	1.37	CUFT=	31.34	VBAR=	22.87	DIST= 22.5;
DIAM=	13.00	BA=	0.92	CUFT=	19.08	VBAR=	20.73	DIST= 9.8;
DIAM=	12.00	BA=	0.78	CUFT=	15.71	VBAR=	20.14	DIST= 3.5;
DIAM=	8.60	BA=	0.40	CUFT=	7.11	VBAR=	17.77	DIST= 7.2;
DIAM=	12.90	BA=	0.90	CUFT=	18.73	VBAR=	20.81	DIST= 18.2;
DIAM=	18.50	BA=	1.86	CUFT=	45.82	VBAR=	24.63	DIST= 40.4;
DIAM=	19.40	BA=	2.05	CUFT=	51.68	VBAR=	25.20	DIST= 33.8;

SUM VBAR SQUARED = 38243.71

RUNNING TOTAL VBAR SQUARED = 92248.82

SAMPLE POINT COORDINATES ARE 1175.0 1715.0

DIAM=	12.80	BA=	0.89	CUFT=	18.37	VBAR=	20.64	DIST= 22.5;
DIAM=	5.90	BA=	0.18	CUFT=	2.98	VBAR=	16.55	DIST= 3.8;
DIAM=	5.60	BA=	0.17	CUFT=	2.65	VBAR=	15.58	DIST= 3.1;
DIAM=	8.40	BA=	0.38	CUFT=	6.73	VBAR=	17.71	DIST= 20.1;
DIAM=	11.20	BA=	0.68	CUFT=	13.30	VBAR=	19.55	DIST= 16.0;
DIAM=	19.10	BA=	1.98	CUFT=	49.68	VBAR=	25.09	DIST= 42.0;
DIAM=	16.50	BA=	1.48	CUFT=	34.37	VBAR=	23.22	DIST= 44.8;
DIAM=	8.80	BA=	0.42	CUFT=	7.50	VBAR=	17.85	DIST= 22.5;
DIAM=	9.80	BA=	0.52	CUFT=	9.67	VBAR=	18.59	DIST= 16.8;
DIAM=	11.60	BA=	0.73	CUFT=	14.47	VBAR=	19.82	DIST= 17.6;

SUM VBAR SQUARED = 37869.16

RUNNING TOTAL VBAR SQUARED = 130117.98

SAMPLE POINT COORDINATES ARE 1385.0 1100.0

DIAM=	6.80	BA=	0.25	CUFT=	4.12	VBAR=	16.48	DIST= 2.0;
DIAM=	14.90	BA=	1.21	CUFT=	26.68	VBAR=	22.04	DIST= 26.8;
DIAM=	12.30	BA=	0.82	CUFT=	16.68	VBAR=	20.34	DIST= 33.5;
DIAM=	15.00	BA=	1.22	CUFT=	27.12	VBAR=	22.22	DIST= 27.0;
DIAM=	5.90	BA=	0.18	CUFT=	2.98	VBAR=	16.55	DIST= 12.7;
DIAM=	11.70	BA=	0.74	CUFT=	14.78	VBAR=	19.97	DIST= 16.7;
DIAM=	8.10	BA=	0.35	CUFT=	6.18	VBAR=	17.65	DIST= 17.1;
DIAM=	7.40	BA=	0.29	CUFT=	5.01	VBAR=	17.27	DIST= 8.1;
DIAM=	6.40	BA=	0.22	CUFT=	3.59	VBAR=	16.31	DIST= 16.4;
DIAM=	8.10	BA=	0.35	CUFT=	6.18	VBAR=	17.65	DIST= 9.5;
DIAM=	6.50	BA=	0.23	CUFT=	3.72	VBAR=	16.17	DIST= 14.9;
DIAM=	13.60	BA=	1.00	CUFT=	21.31	VBAR=	21.31	DIST= 14.8;
DIAM=	18.20	BA=	1.80	CUFT=	43.97	VBAR=	24.42	DIST= 14.3;

SUM VBAR SQUARED = 61692.62

RUNNING TOTAL VBAR SQUARED = 191810.60

SAMPLE POINT COORDINATES ARE 1385.0 1407.5

DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST= 35.2;
DIAM=	7.60	BA=	0.31	CUFT=	5.33	VBAR=	17.19	DIST= 15.8;
DIAM=	18.20	BA=	1.80	CUFT=	43.97	VBAR=	24.42	DIST= 5.6;
DIAM=	8.00	BA=	0.34	CUFT=	6.00	VBAR=	17.64	DIST= 16.4;
DIAM=	14.30	BA=	1.11	CUFT=	24.10	VBAR=	21.71	DIST= 11.4;
DIAM=	16.00	BA=	1.39	CUFT=	31.83	VBAR=	22.89	DIST= 12.5;
DIAM=	14.60	BA=	1.16	CUFT=	25.37	VBAR=	21.87	DIST= 29.8;

DIAM= 18.00 BA= 1.76 CUFT= 42.76 VBAR= 24.29 DIST= 43.7;

SUM VBAR SQUARED = 30036.35

RUNNING TOTAL VBAR SQUARED = 221846.95

SAMPLE POINT COORDINATES ARE 1385.0 1715.0

DIAM=	7.20	BA=	0.28	CUFT=	4.70	VBAR=	16.78	DIST= 19.3;
DIAM=	20.80	BA=	2.35	CUFT=	61.72	VBAR=	26.26	DIST= 54.7;
DIAM=	12.20	BA=	0.81	CUFT=	16.35	VBAR=	20.18	DIST= 15.9;
DIAM=	5.60	BA=	0.17	CUFT=	2.65	VBAR=	15.58	DIST= 6.0;
DIAM=	7.90	BA=	0.34	CUFT=	5.83	VBAR=	17.14	DIST= 21.0;
DIAM=	6.00	BA=	0.19	CUFT=	3.10	VBAR=	16.31	DIST= 15.9;
DIAM=	8.10	BA=	0.35	CUFT=	6.18	VBAR=	17.65	DIST= 20.8;

SUM VBAR SQUARED = 16874.00

RUNNING TOTAL VBAR SQUARED = 238720.95

A= 22.29 B= 14.24;

TOTAL NUMBER OF TREES SAMPLED = 58

AVERAGE TREE COUNT = 9.66

SUM VBAR = 1174.14

AVERAGE VBAR= 20.24

BASAL AREA PER ACRE = 96.66

AVERAGE VOLUME PER ACRE = 1956.39

TOTAL VOLUME IN CUBIC FEET = 22635.43

CVTC= 22.29 STDETC= 2.15 STDEVBR= 2.89 CVBAR= 14.24;

STANDARD ERROR = 172.75

SAMPLING ERROR % = 8.83

COEFF. OF VARIATION % = 21.62

STANDARD ERROR OF MEAN TREE COUNT = 0.88

STANDARD ERROR OF MEAN VBAR = 0.38

SAMPLING ERROR OF TREE COUNT % = 9.10

SAMPLING ERROR OF VBAR % = 1.87

COMBINED SAMPLING ERROR TC & VBAR % = 9.29

OPTIMUM NUMBER OF TREE COUNT POINTS = 9.93
OPTIMUM NUMBER MEASUREMENT POINTS = 0.41

RATIO OF TREE COUNT POINTS TO MEASUREMENT POINTS IS 24 TO 1

PRACTICAL NUMBER OF TREE COUNT POINTS IS 7.00
PRACTICAL NUMBER OF MEASUREMENT POINTS IS 1.00

COST FOR COMBINED SAMPLING ERROR OF 10%

OPTIMUM COST = 17.06

PRACTICAL COST = 15.33

BAF= 15;

SAMPLE POINT COORDINATES ARE 1175.0 1100.0

DIAM=	14.40	BA=	1.13	CUFT=	24.52	VBAR=	21.69	DIST=	18.1;
DIAM=	11.50	BA=	0.72	CUFT=	14.18	VBAR=	19.69	DIST=	9.8;
DIAM=	11.20	BA=	0.68	CUFT=	13.30	VBAR=	19.55	DIST=	23.6;
DIAM=	5.00	BA=	0.13	CUFT=	2.06	VBAR=	15.84	DIST=	6.1;
DIAM=	14.80	BA=	1.19	CUFT=	26.24	VBAR=	22.05	DIST=	17.0;
DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST=	34.0;
DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST=	37.1;
DIAM=	17.30	BA=	1.63	CUFT=	38.70	VBAR=	23.74	DIST=	38.0;
DIAM=	11.80	BA=	0.75	CUFT=	15.08	VBAR=	20.10	DIST=	9.1;
DIAM=	12.40	BA=	0.83	CUFT=	17.01	VBAR=	20.49	DIST=	21.7;

SUM VBAR SQUARED = 43995.06

RUNNING TOTAL VBAR SQUARED = 43995.06

SAMPLE POINT COORDINATES ARE 1175.0 1407.5

DIAM=	15.90	BA=	1.37	CUFT=	31.34	VBAR=	22.87	DIST=	22.5;
DIAM=	13.00	BA=	0.92	CUFT=	19.08	VBAR=	20.73	DIST=	9.8;
DIAM=	12.00	BA=	0.78	CUFT=	15.71	VBAR=	20.14	DIST=	3.5;
DIAM=	8.60	BA=	0.40	CUFT=	7.11	VBAR=	17.77	DIST=	7.2;
DIAM=	12.90	BA=	0.90	CUFT=	18.73	VBAR=	20.81	DIST=	18.2;
DIAM=	18.50	BA=	1.86	CUFT=	45.82	VBAR=	24.63	DIST=	40.4;
DIAM=	19.40	BA=	2.05	CUFT=	51.68	VBAR=	25.20	DIST=	33.8;

SUM VBAR SQUARED = 23149.62

RUNNING TOTAL VBAR SQUARED = 67144.68

SAMPLE POINT COORDINATES ARE 1175.0 1715.0

DIAM=	12.80	BA=	0.89	CUFT=	18.37	VBAR=	20.64	DIST=	22.5;
DIAM=	5.90	BA=	0.18	CUFT=	2.98	VBAR=	16.55	DIST=	3.8;
DIAM=	5.60	BA=	0.17	CUFT=	2.65	VBAR=	15.58	DIST=	3.1;
DIAM=	11.20	BA=	0.68	CUFT=	13.30	VBAR=	19.55	DIST=	16.0;
DIAM=	19.10	BA=	1.98	CUFT=	49.68	VBAR=	25.09	DIST=	42.0;
DIAM=	9.80	BA=	0.52	CUFT=	9.67	VBAR=	18.59	DIST=	16.8;
DIAM=	11.60	BA=	0.73	CUFT=	14.47	VBAR=	19.82	DIST=	17.6;

SUM VBAR SQUARED = 18447.07

RUNNING TOTAL VBAR SQUARED = 85591.75

SAMPLE POINT COORDINATES ARE 1385.0 1100.0

DIAM=	6.80	BA=	0.25	CUFT=	4.12	VBAR=	16.48	DIST=	2.0;

DIAM= 14.90 BA= 1.21 CUFT= 26.68 VBAR= 22.04 DIST= 26.8;
DIAM= 15.00 BA= 1.22 CUFT= 27.12 VBAR= 22.22 DIST= 27.0;
DIAM= 5.90 BA= 0.18 CUFT= 2.98 VBAR= 16.55 DIST= 12.7;
DIAM= 11.70 BA= 0.74 CUFT= 14.78 VBAR= 19.97 DIST= 16.7;
DIAM= 8.10 BA= 0.35 CUFT= 6.18 VBAR= 17.65 DIST= 17.1;
DIAM= 7.40 BA= 0.29 CUFT= 5.01 VBAR= 17.27 DIST= 8.1;
DIAM= 8.10 BA= 0.35 CUFT= 6.18 VBAR= 17.65 DIST= 9.5;
DIAM= 13.60 BA= 1.00 CUFT= 21.31 VBAR= 21.31 DIST= 14.8;
DIAM= 18.20 BA= 1.80 CUFT= 43.97 VBAR= 24.42 DIST= 14.3;

SUM VBAR SQUARED = 38243.71

RUNNING TOTAL VBAR SQUARED = 123835.46

SAMPLE POINT COORDINATES ARE 1385.0 1407.5
DIAM= 16.70 BA= 1.52 CUFT= 35.43 VBAR= 23.30 DIST= 35.2;
DIAM= 7.60 BA= 0.31 CUFT= 5.33 VBAR= 17.19 DIST= 15.8;
DIAM= 18.20 BA= 1.80 CUFT= 43.97 VBAR= 24.42 DIST= 5.6;
DIAM= 8.00 BA= 0.34 CUFT= 6.00 VBAR= 17.64 DIST= 16.4;
DIAM= 14.30 BA= 1.11 CUFT= 24.10 VBAR= 21.71 DIST= 11.4;
DIAM= 16.00 BA= 1.39 CUFT= 31.83 VBAR= 22.89 DIST= 12.5;
DIAM= 14.60 BA= 1.16 CUFT= 25.37 VBAR= 21.87 DIST= 29.8;

SUM VBAR SQUARED = 22206.96

RUNNING TOTAL VBAR SQUARED = 146042.42

SAMPLE POINT COORDINATES ARE 1385.0 1715.0
DIAM= 12.20 BA= 0.81 CUFT= 16.35 VBAR= 20.18 DIST= 15.9;
DIAM= 5.60 BA= 0.17 CUFT= 2.65 VBAR= 15.58 DIST= 6.0;

SUM VBAR SQUARED = 1278.77

RUNNING TOTAL VBAR SQUARED = 147321.19
A= 40.66 B= 13.44;

TOTAL NUMBER OF TREES SAMPLED = 43

AVERAGE TREE COUNT = 7.16

SUM VBAR = 878.06

AVERAGE VBAR= 20.42

BASAL AREA PER ACRE = 107.49

AVERAGE VOLUME PER ACRE = 2194.94

TOTAL VOLUME IN CUBIC FEET = 25395.45

CVTC= 40.66 STDETC= 2.91 STDEVBR= 2.75 CVBAR= 13.44;

STANDARD ERROR = 375.72

SAMPLING ERROR % = 17.11

COEFF. OF VARIATION % = 41.91

STANDARD ERROR OF MEAN TREE COUNT = 1.19

STANDARD ERROR OF MEAN VBAR = 0.42

SAMPLING ERROR OF TREE COUNT % = 16.60

SAMPLING ERROR OF VBAR % = 2.05

COMBINED SAMPLING ERROR TC & VBAR % = 16.72

OPTIMUM NUMBER OF TREE COUNT POINTS = 33.06
OPTIMUM NUMBER MEASUREMENT POINTS = 0.50

RATIO OF TREE COUNT POINTS TO MEASUREMENT POINTS IS 66 TO 1

PRACTICAL NUMBER OF TREE COUNT POINTS IS 23.00
PRACTICAL NUMBER OF MEASUREMENT POINTS IS 1.00

COST FOR COMBINED SAMPLING ERROR OF 10%

OPTIMUM COST = 33.16

PRACTICAL COST = 27.05

BAF= 20;

SAMPLE POINT COORDINATES ARE 1175.0 1100.0

DIAM=	14.40	BA=	1.13	CUFT=	24.52	VBAR=	21.69	DIST= 18.1;
DIAM=	11.50	BA=	0.72	CUFT=	14.18	VBAR=	19.69	DIST= 9.8;
DIAM=	5.00	BA=	0.13	CUFT=	2.06	VBAR=	15.84	DIST= 6.1;
DIAM=	14.80	BA=	1.19	CUFT=	26.24	VBAR=	22.05	DIST= 17.0;
DIAM=	11.80	BA=	0.75	CUFT=	15.08	VBAR=	20.10	DIST= 9.1;
DIAM=	12.40	BA=	0.83	CUFT=	17.01	VBAR=	20.49	DIST= 21.7;

SUM VBAR SQUARED = 14366.41

RUNNING TOTAL VBAR SQUARED = 14366.41

SAMPLE POINT COORDINATES ARE 1175.0 1407.5

DIAM=	15.90	BA=	1.37	CUFT=	31.34	VBAR=	22.87	DIST= 22.5;
DIAM=	13.00	BA=	0.92	CUFT=	19.08	VBAR=	20.73	DIST= 9.8;
DIAM=	12.00	BA=	0.78	CUFT=	15.71	VBAR=	20.14	DIST= 3.5;
DIAM=	8.60	BA=	0.40	CUFT=	7.11	VBAR=	17.77	DIST= 7.2;
DIAM=	12.90	BA=	0.90	CUFT=	18.73	VBAR=	20.81	DIST= 18.2;
DIAM=	19.40	BA=	2.05	CUFT=	51.68	VBAR=	25.20	DIST= 33.8;

SUM VBAR SQUARED = 16261.35

RUNNING TOTAL VBAR SQUARED = 30627.76

SAMPLE POINT COORDINATES ARE 1175.0 1715.0

DIAM=	12.80	BA=	0.89	CUFT=	18.37	VBAR=	20.64	DIST= 22.5;
DIAM=	5.90	BA=	0.18	CUFT=	2.98	VBAR=	16.55	DIST= 3.8;
DIAM=	5.60	BA=	0.17	CUFT=	2.65	VBAR=	15.58	DIST= 3.1;

DIAM= 11.20 BA= 0.68 CUFT= 13.30 VBAR= 19.55 DIST= 16.0;
DIAM= 9.80 BA= 0.52 CUFT= 9.67 VBAR= 18.59 DIST= 16.8;
DIAM= 11.60 BA= 0.73 CUFT= 14.47 VBAR= 19.82 DIST= 17.6;

SUM VBAR SQUARED = 12261.13

RUNNING TOTAL VBAR SQUARED = 42888.89

SAMPLE POINT COORDINATES ARE 1385.0 1100.0
DIAM= 6.80 BA= 0.25 CUFT= 4.12 VBAR= 16.48 DIST= 2.0;
DIAM= 14.90 BA= 1.21 CUFT= 26.68 VBAR= 22.04 DIST= 26.8;
DIAM= 15.00 BA= 1.22 CUFT= 27.12 VBAR= 22.22 DIST= 27.0;
DIAM= 11.70 BA= 0.74 CUFT= 14.78 VBAR= 19.97 DIST= 16.7;
DIAM= 7.40 BA= 0.29 CUFT= 5.01 VBAR= 17.27 DIST= 8.1;
DIAM= 8.10 BA= 0.35 CUFT= 6.18 VBAR= 17.65 DIST= 9.5;
DIAM= 13.60 BA= 1.00 CUFT= 21.31 VBAR= 21.31 DIST= 14.8;
DIAM= 18.20 BA= 1.80 CUFT= 43.97 VBAR= 24.42 DIST= 14.3;

SUM VBAR SQUARED = 26037.04

RUNNING TOTAL VBAR SQUARED = 68925.93

SAMPLE POINT COORDINATES ARE 1385.0 1407.5
DIAM= 18.20 BA= 1.80 CUFT= 43.97 VBAR= 24.42 DIST= 5.6;
DIAM= 14.30 BA= 1.11 CUFT= 24.10 VBAR= 21.71 DIST= 11.4;
DIAM= 16.00 BA= 1.39 CUFT= 31.83 VBAR= 22.89 DIST= 12.5;

SUM VBAR SQUARED = 4763.76

RUNNING TOTAL VBAR SQUARED = 73689.69

SAMPLE POINT COORDINATES ARE 1385.0 1715.0
DIAM= 12.20 BA= 0.81 CUFT= 16.35 VBAR= 20.18 DIST= 15.9;
DIAM= 5.60 BA= 0.17 CUFT= 2.65 VBAR= 15.58 DIST= 6.0;

SUM VBAR SQUARED = 1278.77

RUNNING TOTAL VBAR SQUARED = 74968.46
A= 42.64 B= 12.97;

TOTAL NUMBER OF TREES SAMPLED = 31

AVERAGE TREE COUNT = 5.16

SUM VBAR = 624.25

AVERAGE VBAR= 20.13

BASAL AREA PER ACRE = 103.33

AVERAGE VOLUME PER ACRE = 2080.03

TOTAL VOLUME IN CUBIC FEET = 24065.94

CVTC= 42.64 STDETC= 2.20 STDEVBR= 2.61 CVBAR= 12.97;

STANDARD ERROR = 365.52

SAMPLING ERROR % = 17.57

COEFF. OF VARIATION % = 43.03

STANDARD ERROR OF MEAN TREE COUNT = 0.90

STANDARD ERROR OF MEAN VBAR = 0.47

SAMPLING ERROR OF TREE COUNT % = 17.41

SAMPLING ERROR OF VBAR % = 2.33

COMBINED SAMPLING ERROR TC & VBAR % = 17.56

OPTIMUM NUMBER OF TREE COUNT POINTS = 36.36
OPTIMUM NUMBER MEASUREMENT POINTS = 0.65

RATIO OF TREE COUNT POINTS TO MEASUREMENT POINTS IS 56 TO 1

PRACTICAL NUMBER OF TREE COUNT POINTS IS 28.00
PRACTICAL NUMBER OF MEASUREMENT POINTS IS 1.00

COST FOR COMBINED SAMPLING ERROR OF 10%

OPTIMUM COST = 31.56

PRACTICAL COST = 27.19

BAF= 30;

SAMPLE POINT COORDINATES ARE 1175.0 1100.0

DIAM=	14.40	BA=	1.13	CUFT=	24.52	VBAR=	21.69	DIST=	18.1;
DIAM=	11.50	BA=	0.72	CUFT=	14.18	VBAR=	19.69	DIST=	9.8;
DIAM=	5.00	BA=	0.13	CUFT=	2.06	VBAR=	15.84	DIST=	6.1;
DIAM=	14.80	BA=	1.19	CUFT=	26.24	VBAR=	22.05	DIST=	17.0;
DIAM=	11.80	BA=	0.75	CUFT=	15.08	VBAR=	20.10	DIST=	9.1;

SUM VBAR SQUARED = 9874.39

RUNNING TOTAL VBAR SQUARED = 9874.39

SAMPLE POINT COORDINATES ARE 1175.0 1407.5

DIAM=	15.90	BA=	1.37	CUFT=	31.34	VBAR=	22.87	DIST=	22.5;
DIAM=	13.00	BA=	0.92	CUFT=	19.08	VBAR=	20.73	DIST=	9.8;
DIAM=	12.00	BA=	0.78	CUFT=	15.71	VBAR=	20.14	DIST=	3.5;
DIAM=	8.60	BA=	0.40	CUFT=	7.11	VBAR=	17.77	DIST=	7.2;
DIAM=	12.90	BA=	0.90	CUFT=	18.73	VBAR=	20.81	DIST=	18.2;

SUM VBAR SQUARED = 10469.38

RUNNING TOTAL VBAR SQUARED = 20343.77

SAMPLE POINT COORDINATES ARE 1175.0 1715.0

DIAM=	5.90	BA=	0.18	CUFT=	2.98	VBAR=	16.55	DIST=	3.8;

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DIAM=    5.60          BA=    0.17          CUFT=    2.65          VBAR=   15.58          DIST=     3.1;
DIAM=   11.20          BA=    0.68          CUFT=   13.30          VBAR=   19.55          DIST=    16.0;
DIAM=   11.60          BA=    0.73          CUFT=   14.47          VBAR=   19.82          DIST=    17.6;

SUM VBAR SQUARED =          5112.25

RUNNING TOTAL VBAR SQUARED =                    25456.02

SAMPLE POINT COORDINATES ARE                    1385.0                        1100.0
DIAM=    6.80          BA=    0.25          CUFT=    4.12          VBAR=   16.48          DIST=     2.0;
DIAM=   11.70          BA=    0.74          CUFT=   14.78          VBAR=   19.97          DIST=    16.7;
DIAM=    7.40          BA=    0.29          CUFT=    5.01          VBAR=   17.27          DIST=     8.1;
DIAM=    8.10          BA=    0.35          CUFT=    6.18          VBAR=   17.65          DIST=     9.5;
DIAM=   13.60          BA=    1.00          CUFT=   21.31          VBAR=   21.31          DIST=    14.8;
DIAM=   18.20          BA=    1.80          CUFT=   43.97          VBAR=   24.42          DIST=    14.3;

SUM VBAR SQUARED =         13712.40

RUNNING TOTAL VBAR SQUARED =                    39168.42

SAMPLE POINT COORDINATES ARE                    1385.0                        1407.5
DIAM=   18.20          BA=    1.80          CUFT=   43.97          VBAR=   24.42          DIST=     5.6;
DIAM=   14.30          BA=    1.11          CUFT=   24.10          VBAR=   21.71          DIST=    11.4;
DIAM=   16.00          BA=    1.39          CUFT=   31.83          VBAR=   22.89          DIST=    12.5;

SUM VBAR SQUARED =          4763.76

RUNNING TOTAL VBAR SQUARED =                    43932.18

SAMPLE POINT COORDINATES ARE                    1385.0                        1715.0
DIAM=   12.20          BA=    0.81          CUFT=   16.35          VBAR=   20.18          DIST=    15.9;
DIAM=    5.60          BA=    0.17          CUFT=    2.65          VBAR=   15.58          DIST=     6.0;

SUM VBAR SQUARED =          1278.77

RUNNING TOTAL VBAR SQUARED =                    45210.95
A=      35.27          B=      13.09;


TOTAL NUMBER OF TREES SAMPLED =                 25
AVERAGE TREE COUNT =        4.16
SUM VBAR =                495.07
AVERAGE VBAR=              19.80
BASAL AREA PER ACRE =      124.99
AVERAGE VOLUME PER ACRE =                    2474.80
TOTAL VOLUME IN CUBIC FEET =                28633.43
CVTC=      35.27       STDETC=      1.46     STDEVBR=      2.59     CWBAR=      13.09;
STANDARD ERROR =          361.74
SAMPLING ERROR % =         14.61
COEFF. OF VARIATION % =    35.78
```

STANDARD ERROR OF MEAN TREE COUNT = 0.60

STANDARD ERROR OF MEAN VBAR = 0.52

SAMPLING ERROR OF TREE COUNT % = 14.40

SAMPLING ERROR OF VBAR % = 2.62

COMBINED SAMPLING ERROR TC & VBAR % = 14.63

OPTIMUM NUMBER OF TREE COUNT POINTS = 24.87
OPTIMUM NUMBER MEASUREMENT POINTS = 0.82

RATIO OF TREE COUNT POINTS TO MEASUREMENT POINTS IS 30 TO 1

PRACTICAL NUMBER OF TREE COUNT POINTS IS 22.00
PRACTICAL NUMBER OF MEASUREMENT POINTS IS 1.00

COST FOR COMBINED SAMPLING ERROR OF 10%

OPTIMUM COST = 23.62

PRACTICAL COST = 22.13

BAF= 40;

SAMPLE POINT COORDINATES ARE 1175.0 1100.0

DIAM=	14.40	BA=	1.13	CUFT=	24.52	VBAR=	21.69	DIST=	18.1;
DIAM=	11.50	BA=	0.72	CUFT=	14.18	VBAR=	19.69	DIST=	9.8;
DIAM=	5.00	BA=	0.13	CUFT=	2.06	VBAR=	15.84	DIST=	6.1;
DIAM=	14.80	BA=	1.19	CUFT=	26.24	VBAR=	22.05	DIST=	17.0;
DIAM=	11.80	BA=	0.75	CUFT=	15.08	VBAR=	20.10	DIST=	9.1;

SUM VBAR SQUARED = 9874.39

RUNNING TOTAL VBAR SQUARED = 9874.39

SAMPLE POINT COORDINATES ARE 1175.0 1407.5

DIAM=	13.00	BA=	0.92	CUFT=	19.08	VBAR=	20.73	DIST=	9.8;
DIAM=	12.00	BA=	0.78	CUFT=	15.71	VBAR=	20.14	DIST=	3.5;
DIAM=	8.60	BA=	0.40	CUFT=	7.11	VBAR=	17.77	DIST=	7.2;

SUM VBAR SQUARED = 3438.64

RUNNING TOTAL VBAR SQUARED = 13313.03

SAMPLE POINT COORDINATES ARE 1175.0 1715.0

DIAM=	5.90	BA=	0.18	CUFT=	2.98	VBAR=	16.55	DIST=	3.8;
DIAM=	5.60	BA=	0.17	CUFT=	2.65	VBAR=	15.58	DIST=	3.1;

SUM VBAR SQUARED = 1032.33

RUNNING TOTAL VBAR SQUARED = 14345.36

SAMPLE POINT COORDINATES ARE 1385.0 1100.0

DIAM=	6.80	BA=	0.25	CUFT=	4.12	VBAR=	16.48	DIST= 2.0;
DIAM=	7.40	BA=	0.29	CUFT=	5.01	VBAR=	17.27	DIST= 8.1;
DIAM=	8.10	BA=	0.35	CUFT=	6.18	VBAR=	17.65	DIST= 9.5;
DIAM=	13.60	BA=	1.00	CUFT=	21.31	VBAR=	21.31	DIST= 14.8;
DIAM=	18.20	BA=	1.80	CUFT=	43.97	VBAR=	24.42	DIST= 14.3;

SUM VBAR SQUARED = 9434.23

RUNNING TOTAL VBAR SQUARED = 23779.59

SAMPLE POINT COORDINATES ARE 1385.0 1407.5

DIAM=	18.20	BA=	1.80	CUFT=	43.97	VBAR=	24.42	DIST= 5.6;
DIAM=	14.30	BA=	1.11	CUFT=	24.10	VBAR=	21.71	DIST= 11.4;
DIAM=	16.00	BA=	1.39	CUFT=	31.83	VBAR=	22.89	DIST= 12.5;

SUM VBAR SQUARED = 4763.76

RUNNING TOTAL VBAR SQUARED = 28543.35

SAMPLE POINT COORDINATES ARE 1385.0 1715.0

DIAM=	12.20	BA=	0.81	CUFT=	16.35	VBAR=	20.18	DIST= 15.9;
DIAM=	5.60	BA=	0.17	CUFT=	2.65	VBAR=	15.58	DIST= 6.0;

SUM VBAR SQUARED = 1278.77

RUNNING TOTAL VBAR SQUARED = 29822.12

A= 40.41 B= 14.35;

TOTAL NUMBER OF TREES SAMPLED = 20

AVERAGE TREE COUNT = 3.33

SUM VBAR = 392.05

AVERAGE VBAR= 19.60

BASAL AREA PER ACRE = 133.33

AVERAGE VOLUME PER ACRE = 2613.26

TOTAL VOLUME IN CUBIC FEET = 30235.41

CVTC= 40.41 STDETC= 1.34 STDEVBR= 2.81 CVVBAR= 14.35;

STANDARD ERROR = 473.56

SAMPLING ERROR % = 18.12

COEFF. OF VARIATION % = 44.38

STANDARD ERROR OF MEAN TREE COUNT = 0.55

STANDARD ERROR OF MEAN VBAR = 0.63

SAMPLING ERROR OF TREE COUNT % = 16.50

SAMPLING ERROR OF VBAR % = 3.21

COMBINED SAMPLING ERROR TC & VBAR % = 16.80

OPTIMUM NUMBER OF TREE COUNT POINTS = 32.65
OPTIMUM NUMBER MEASUREMENT POINTS = 1.23

RATIO OF TREE COUNT POINTS TO MEASUREMENT POINTS IS 26 TO 1

PRACTICAL NUMBER OF TREE COUNT POINTS IS 24.00
PRACTICAL NUMBER OF MEASUREMENT POINTS IS 2.00

COST FOR COMBINED SAMPLING ERROR OF 10%

OPTIMUM COST = 26.58

PRACTICAL COST = 22.76

OPTIONS USED

AGGREGATE	NOCOUNT	CHARSET(60,EBCDIC)
ATTRIBUTES	NODECK	NOCOMPILE(S)
GOSTMT	NOESD	FLAG(I)
INSOURCE	NOFLOW	LINECOUNT(62)
LMESSAGE	NOGONUMBER	MARGINI('|')
NEST	NOIMPRECISE	MARGINS(2,72,1)
OBJECT	NOINCLUDE	SEQUENCE(73,80)
OFFSET	NOLIST	SIZE(247504)
OPTIONS	NOMACRO	NOSYNTAX(S)
SOURCE	NOMAP	
STMT	NOMDECK	
STORAGE	NONUMBER	
XREF	NOOPTIMIZE	
	NOTERMINAL	

9 Point Cruise

SOURCE LISTING

```
STMT LEV NT
   1       0  TREES:PROC OPTIONS(MAIN);
              /*                                                          */
              /*      THIS PROGRAM IS A SAMPLING SIMULATION OF VARIABLE PLOT */
              /* CRUISING. THE DATA CONSIST OF AN 11.57 ACRE UNEVEN AGED STAND OF */
              /* HARDWOODS. FOR EACH OF THESE 1615 TREES, DATA ARE GIVEN ON TREE */
              /* SPECIES, LOCATION IN X AND Y COORDINATES (IN FEET), DIAMETER (IN */
              /* INCHES), BASAL AREA (IN SQUARE FEET), VOLUME (IN CUBIC FEET), */
              /* AND HEIGHT (IN FEET).                                    */
              /*      TO CHANGE THE NUMBER OF SAMPLING POINTS, ONE MUST CHANGE */
              /* THREE CARDS. THEY ARE CARDS IN STATEMENTS 30, 51, AND 52. NPLOTS */
              /* IN STATEMENT 30 REPRESENTS THE NUMBER OF SAMPLING POINTS.  */
              /* STATEMENTS 51 AND 52 SPECIFY WHERE THESE POINTS ARE. DUE TO THE */
              /* SETUP OF THE COORDINATE SYSTEM, X MUST LIE BETWEEN 1075' AND */
              /* 1485' AND Y MUST LIE BETWEEN 1100' AND 1715'.            */
              /*                                                          */
   2    1  0  DCL (XCO,YCO,I,J) FIXED(8,1);
   3    1  0  DCL 1 TREE,
                  2 DIAM FIXED(4,1),
                  2 BA FIXED(4,2),
                  2 CUFT FIXED(5,2);
   4    1  0  DCL(K,H,M,BAF,NPLOTS,NUM) FIXED(5,0);
   5    1  0  DCL (DIST) FIXED(8,1);
   6    1  0   DCL ARXCO(1615) FIXED(8,1);
   7    1  0   DCL ARYCO(1615) FIXED(8,1);
   8    1  0   DCL ARDIAM(1615) FIXED(5,1);
   9    1  0   DCL ARBA(1615) FIXED(4,2);
  10    1  0   DCL ARCUFT(1615) FIXED(4,2);
  11    1  0  DCL(DIAM,BA,CUFT,VBAR,ROUNVBAR) FIXED(5,2);
  12    1  0  DCL COUNT FIXED(5,0) INIT(0);
  13    1  0  DCL SMVBAR FIXED(10,2) INIT(0);
  14    1  0  DCL(AVVBAR,BAPA,AVVOL,TOTVOL) FIXED(10,2);
  15    1  0  DCL SPVBAR FIXED(8,2);
  16    1  0  DCL SVBARSQ FIXED(10,2);
  17    1  0  DCL SEP FIXED(5,2);
  18    1  0  DCL SPVBARQ FIXED(8,2);
  19    1  0  DCL SE FIXED(6,2);
  20    1  0  DCL C FIXED(5,2);
  21    1  0  DCL(VBARSQ,COUNTQ,SETCM,SETCP,SEVBARM,SEVBARP,SETCVB,A,B,ARATIO)
                  FIXED(8,2);
  22    1  0  DCL BRATIO FIXED(6,0);
  23    1  0  DCL (SCOUNTQ,SUMVBSQ) FIXED(10,2);
  24    1  0  DCL (CW,CTC,CM,WALK,NTC,NVBAR,COST) FLOAT;
  25    1  0  DCL(CVTC,STDETC,STDEVBR,CVVBAR) FIXED(8,2);
  26    1  0  DCL(TOTDIST,AVDIST,BVCOUNT) FIXED(10,2);
  27    1  0  DCL(ASETC,PNTC) FIXED(8,2);
  28    1  0  CW=.5;
  29    1  0  CTC=.05;
  30    1  0  NPLOTS=9;
  31    1  0  AAA:DO H=1 TO 1615;
  32    1  1      GET EDIT(XCO)(COL(14),F(6,1));
  33    1  1      ARXCO(H)=XCO;
  34    1  1      GET EDIT(YCO)(COL(24),F(6,1));
  35    1  1      ARYCO(H)=YCO;
```

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STMT LEV NT

  36   1   1      GET EDIT (TREE.DIAM)(COL(33),F(4,1));
  37   1   1      ARDIAM(H)=TREE.DIAM;
  38   1   1      GET EDIT (TREE.BA)(COL(40),F(4,2));
  39   1   1      ARBA(H)=TREE.BA;
  40   1   1      GET EDIT (TREE.CUFT)(COL(51),F(5,2));
  41   1   1      ARCUFT(H)=TREE.CUFT;
  42   1   1      END AAA;
  43   1   0  AB:DO BAF=5,10,15,20,30,40;
  44   1   1      PUT SKIP(10) DATA(BAF);
  45   1   1      COUNT=0;
  46   1   1      SMVBAR=0;
  47   1   1      SVBARSQ=0;
  48   1   1      SCOUNTQ=0;
  49   1   1      SUMVBSQ=0;
  50   1   1      TOTDIST=0;
  51   1   1  AA:DO I=1075,1280,1485;
  52   1   2   BB:DO J=1100,1407.5,1715;
  53   1   3   PUT SKIP(2) LIST('SAMPLE POINT COORDINATES ARE',I,J);
  54   1   3     SPVBAR=0;
  55   1   3     NUM=0;
  56   1   3     CC:DO K=1 TO 1615;
  57   1   4        XCO=ARXCO(K);
  58   1   4        YCO=ARYCO(K);
  59   1   4    IF (((XCO<(I+100)) & (XCO>(I-100))) & ((YCO<(J+100)) & (YCO>(J-100))))
               THEN DD:DO;
  60   1   5        DIST=((((XCO-I)**2)+((YCO-J)**2))**.5);
  61   1   5        DIAM=ARDIAM(K);
  62   1   5        BA=ARBA(K);
  63   1   5        CUFT=ARCUFT(K);
  64   1   5        IF BAF<=((43560)/(1+(576*((DIST/DIAM)**2)))) THEN EE:DO;
  65   1   6        VBAR=CUFT/BA;
  66   1   6        PUT SKIP DATA(DIAM,BA,CUFT,VBAR,DIST);
  67   1   6        COUNT=COUNT+1;
  68   1   6        SMVBAR=SMVBAR+VBAR;
  69   1   6        SPVBAR=SPVBAR+VBAR;
  70   1   6        NUM=NUM+1;
  71   1   6        VBARSQ=VBAR**2;
  72   1   6        SUMVBSQ=SUMVBSQ+VBARSQ;
  73   1   6        TOTDIST=TOTDIST+DIST;
  74   1   6        END EE;
  75   1   5      END DD;
  76   1   4     END CC;
  77   1   3     SPVBARQ=SPVBAR**2;
  78   1   3      PUT SKIP(2) LIST('SUM VBAR SQUARED =',SPVBARQ);
  79   1   3     SVBARSQ=SVBARSQ+SPVBARQ;
  80   1   3     PUT SKIP(2) LIST('RUNNING TOTAL VBAR SQUARED =',SVBARSQ);
  81   1   3     COUNTQ=NUM**2;
  82   1   3     SCOUNTQ=SCOUNTQ+COUNTQ;
  83   1   3   END BB;
  84   1   2  END AA;
  85   1   1  AVDIST=TOTDIST/COUNT;
  86   1   1  AVVBAR=SMVBAR/COUNT;
  87   1   1  AVCOUNT=COUNT/NPLOTS;
  88   1   1  BAPA=BAF*AVCOUNT;
  89   1   1  AVVOL=BAPA*AVVBAR;
  90   1   1  TOTVOL=11.57*AVVOL;
```

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STMT LEV NI

  91   1   1  SE=(((SVBARSQ-((SMVBAR**2)/NPLOTS))/(NPLOTS*(NPLOTS-1)))**.5)*BAF;
  92   1   1  SEP=(SE/AVVOL)*100;
  93   1   1  C=SEP*(NPLOTS**.5);
  94   1   1  SETCM=(((SCOUNTQ-((COUNT**2)/NPLOTS))/(NPLOTS*(NPLOTS-1)))**.5);
  95   1   1  SETCP=((SETCM/AVCOUNT)*100);
  96   1   1  SEVBARM=(((SUMVBSQ-((SMVBAR**2)/COUNT))/(COUNT*(COUNT-1)))**.5);
  97   1   1  SEVBARP=((SEVBARM/AVVBAR)*100);
  98   1   1  CVTC=(SETCP*((NPLOTS)**.5));
  99   1   1  STDETC=(SETCM*((NPLOTS)**.5));
 100   1   1  STDEVBR=(SEVBARM*((COUNT)**.5));
 101   1   1  CVVBAR=(SEVBARP*((COUNT)**.5));
 102   1   1  SETCVB=(((SETCP**2)+(SEVBARP**2))**.5);
 103   1   1    A=((NPLOTS**.5)*SETCP);
 104   1   1    B=((COUNT**.5)*SEVBARP);
 105   1   1    PUT SKIP DATA(A,B);
 106   1   1    NTC=((A**2)/50);
 107   1   1    NVBAR=(((B**2)/50)/AVCOUNT);
 108   1   1    ARATIO=(NTC/NVBAR);
 109   1   1    BRATIO=ROUND(ARATIO,0);
 110   1   1  PUT SKIP(3) LIST('TOTAL NUMBER OF TREES SAMPLED =',COUNT);
 111   1   1  PUT SKIP(2) LIST('AVERAGE TREE COUNT =',(FIXED(AVCOUNT,5,2)));
 112   1   1  PUT SKIP(2) LIST('SUM VBAR =',SMVBAR);
 113   1   1  PUT SKIP(2) LIST('AVERAGE VBAR=',AVVBAR);
 114   1   1  PUT SKIP(2) LIST('BASAL AREA PER ACRE =',BAPA);
 115   1   1  PUT SKIP(2) LIST('AVERAGE VOLUME PER ACRE =',AVVOL);
 116   1   1  PUT SKIP(2) LIST('TOTAL VOLUME IN CUBIC FEET =',TOTVOL);
 117   1   1  PUT SKIP(2) DATA(CVTC,STDETC,STDEVBR,CVVBAR);
 118   1   1  PUT SKIP(2) LIST('STANDARD ERROR =',SE);
 119   1   1  PUT SKIP(2) LIST('SAMPLING ERROR % =',SEP);
 120   1   1  PUT SKIP(2) LIST('COEFF. OF VARIATION % =',C);
 121   1   1  PUT SKIP(2) LIST('STANDARD ERROR OF MEAN TREE COUNT =',SETCM);
 122   1   1  PUT SKIP(2) LIST('STANDARD ERROR OF MEAN VBAR =',SEVBARM);
 123   1   1  PUT SKIP(2) LIST('SAMPLING ERROR OF TREE COUNT % =',SETCP);
 124   1   1  PUT SKIP(2) LIST('SAMPLING ERROR OF VBAR % =',SEVBARP);
 125   1   1  PUT SKIP(2) LIST('COMBINED SAMPLING ERROR TC & VBAR % =',SETCVB);
 126   1   1  PUT SKIP(2) LIST('OPTIMUM NUMBER OF TREE COUNT POINTS =',
                          (FIXED(NTC,5,2)));
 127   1   1  PUT SKIP LIST('OPTIMUM NUMBER MEASUREMENT POINTS =',
                        (FIXED(NVBAR,5,2)));
 128   1   1  PUT SKIP(2) LIST('RATIO OF TREE COUNT POINTS TO MEASUREMENT POINTS IS',
            BRATIO,'TO 1');
 129   1   1  ROUNVBAR=NVBAR+.5;
 130   1   1  ROUNVBAR=ROUND(ROUNVBAR,0);
 131   1   1  BVCOUNT=AVCOUNT*ROUNVBAR;
 132   1   1  ASETC=((100-((CVVBAR**2)/BVCOUNT))**.5);
 133   1   1  PNTC=(((CVTC/ASETC)**2)+.5);
 134   1   1  PNTC=ROUND(PNTC,0);
 135   1   1  PUT SKIP(2) LIST('PRACTICAL NUMBER OF TREE COUNT POINTS IS',PNTC);
 136   1   1  PUT SKIP LIST('PRACTICAL NUMBER OF MEASUREMENT POINTS IS ',ROUNVBAR);
 137   1   1  PUT SKIP(2) LIST('COST FOR COMBINED SAMPLING ERROR OF 10%');
 138   1   1  GG:DO M=1,2;
 139   1   2    IF M=2 THEN DO;
 140   1   3    NTC=PNTC;
 141   1   3    NVBAR=ROUNVBAR;
 142   1   3    END;
 143   1   2    WALK=(((11.57*43560)/NTC)**.5);
```

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STMT LEV NT

  144   1  2   CM=(.16+((AVDIST/100)*.5));
  145   1  2  COST=((NTC*(CM*(WALR/100)))+(CTC*(AVCOUNT*NTC))+(CM*(AVCOUNT*NVBAR)));
  146   1  2   IF M=1 THEN DO;
  147   1  3  PUT SKIP(2) LIST('OPTIMUM COST =',(FIXED(COST,5,2)));
  148   1  3  END;
  149   1  2  IF M=2 THEN DO;
  150   1  3  PUT SKIP(2) LIST('PRACTICAL COST =',(FIXED(COST,5,2)));
  151   1  3  END;
  152   1  2  END GG;
  153   1  1  END AB;
  154   1  0  END TREES;
```

ATTRIBUTE AND CROSS-REFERENCE TABLE

DCL NO.	IDENTIFIER	ATTRIBUTES AND REFERENCES
21	A	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 103,105,106
51	AA	/* STATEMENT LABEL CONSTANT */
31	AAA	/* STATEMENT LABEL CONSTANT */
43	AB	/* STATEMENT LABEL CONSTANT */
21	ARATIO	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 108,109
9	ARBA	(1615) AUTOMATIC ALIGNED DECIMAL FIXED (4,2) 39,62
10	ARCUFT	(1615) AUTOMATIC ALIGNED DECIMAL FIXED (4,2) 41,63
8	ARDIAM	(1615) AUTOMATIC ALIGNED DECIMAL FIXED (5,1) 37,61
6	ARXCO	(1615) AUTOMATIC ALIGNED DECIMAL FIXED (8,1) 33,57
7	ARYCO	(1615) AUTOMATIC ALIGNED DECIMAL FIXED (8,1) 35,58
27	ASETC	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 132,133
********	AVCOUNT	AUTOMATIC ALIGNED DECIMAL /* SINGLE */ FLOAT (6) 87,88,95,107,111,131,145,145
26	AVDIST	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 85,144
14	AVVBAR	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 86,89,97,113
14	AVVOL	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 89,90,92,115
21	B	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 104,105,107
11	BA	AUTOMATIC ALIGNED DECIMAL FIXED (5,2) 62,65,66
3	BA	/* IN TREE */ AUTOMATIC ALIGNED DECIMAL FIXED (4,2) 38,39

DCL NO.	IDENTIFIER	ATTRIBUTES AND REFERENCES
4	BAF	AUTOMATIC ALIGNED DECIMAL FIXED (5,0) 43,43,43,43,43,43,43,43,43,43,43,43,44,64,88,91
14	BAPA	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 88,89,114
52	BB	/* STATEMENT LABEL CONSTANT */
22	BRATIO	AUTOMATIC ALIGNED DECIMAL FIXED (6,0) 109,128
26	BVCOUNT	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 131,132
20	C	AUTOMATIC ALIGNED DECIMAL FIXED (5,2) 93,120
56	CC	/* STATEMENT LABEL CONSTANT */
24	CM	AUTOMATIC ALIGNED DECIMAL /* SINGLE */ FLOAT (6) 144,145
24	COST	AUTOMATIC ALIGNED DECIMAL /* SINGLE */ FLOAT (6) 145,147,150
12	COUNT	AUTOMATIC ALIGNED INITIAL DECIMAL FIXED (5,0) 1,45,67,67,85,86,87,94,96,96,96,100,101,104,110
21	COUNTQ	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 81,82
24	CTC	AUTOMATIC ALIGNED DECIMAL /* SINGLE */ FLOAT (6) 29,145
3	CUFT	/* IN TREE */ AUTOMATIC ALIGNED DECIMAL FIXED (5,2) 40,41
11	CUFT	AUTOMATIC ALIGNED DECIMAL FIXED (5,2) 63,65,66
25	CVTC	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 98,117,133
25	CVVBAR	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 101,117,132
24	CW	AUTOMATIC ALIGNED DECIMAL /* SINGLE */ FLOAT (6) 28,145
59	DD	/* STATEMENT LABEL CONSTANT */
11	DIAM	AUTOMATIC ALIGNED DECIMAL FIXED (5,2) 61,64,66
3	DIAM	/* IN TREE */ AUTOMATIC ALIGNED DECIMAL FIXED (4,1) 36,37

DCL NO.	IDENTIFIER	ATTRIBUTES AND REFERENCES
5	DIST	AUTOMATIC ALIGNED DECIMAL FIXED (8,1) 60,64,66,73
64	EE	/* STATEMENT LABEL CONSTANT */
********	FIXED	BUILTIN 111,126,127,147,150
138	GG	/* STATEMENT LABEL CONSTANT */
4	H	AUTOMATIC ALIGNED DECIMAL FIXED (5,0) 31,31,33,35,37,39,41
2	I	AUTOMATIC ALIGNED DECIMAL FIXED (8,1) 51,51,51,51,51,51,53,59,59,60
2	J	AUTOMATIC ALIGNED DECIMAL FIXED (8,1) 52,52,52,52,52,52,53,59,59,60
4	K	AUTOMATIC ALIGNED DECIMAL FIXED (5,0) 56,56,57,58,61,62,63
4	M	AUTOMATIC ALIGNED DECIMAL FIXED (5,0) 138,138,138,138,139,146,149
4	NPLOTS	AUTOMATIC ALIGNED DECIMAL FIXED (5,0) 30,87,91,91,91,93,94,94,94,98,99,103
24	NTC	AUTOMATIC ALIGNED DECIMAL /* SINGLE */ FLOAT (6) 106,108,126,140,143,145,145
4	NUM	AUTOMATIC ALIGNED DECIMAL FIXED (5,0) 55,70,70,81
24	NVBAR	AUTOMATIC ALIGNED DECIMAL /* SINGLE */ FLOAT (6) 107,108,127,129,141,145
27	PNTC	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 133,134,134,135,140
********	ROUND	BUILTIN 109,130,134
11	ROUNVBAR	AUTOMATIC ALIGNED DECIMAL FIXED (5,2) 129,130,130,131,136,141
23	SCOUNTQ	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 48,82,82,94
19	SE	AUTOMATIC ALIGNED DECIMAL FIXED (6,2) 91,92,118
17	SEP	AUTOMATIC ALIGNED DECIMAL FIXED (5,2) 92,93,119
21	SETCM	AUTOMATIC ALIGNED DECIMAL FIXED (8,2)

DCL NO.	IDENTIFIER	ATTRIBUTES AND REFERENCES
		94,95,99,121
21	SETCP	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 95,98,102,103,123
21	SETCVB	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 102,125
21	SEVBARM	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 96,97,100,122
21	SEVBARP	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 97,101,102,104,124
13	SMVBAR	AUTOMATIC ALIGNED INITIAL DECIMAL FIXED (10,2) 1,46,68,68,86,91,96,112
15	SPVBAR	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 54,69,69,77
18	SPVBARQ	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 77,78,79
25	STDETC	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 99,117
25	STDEVBR	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 100,117
23	SUMVBSQ	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 49,72,72,96
16	SVBARSQ	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 47,79,79,80,91
********	SYSIN	EXTERNAL FILE 32,34,36,38,40
********	SYSPRINT	EXTERNAL FILE PRINT 44,53,66,78,80,105,110,111,112,113,114,115,116,117,118,119,120,121,122,123, 124,125,126,127,128,135,136,137,147,150
26	TOTDIST	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 50,73,73,85
14	TOTVOL	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 90,116
3	TREE	AUTOMATIC /* STRUCTURE */
1	TREES	EXTERNAL ENTRY RETURNS(DECIMAL /* SINGLE */ FLOAT (6))
11	VBAR	AUTOMATIC ALIGNED DECIMAL FIXED (5,2) 65,66,68,69,71
21	VBARSQ	AUTOMATIC ALIGNED DECIMAL FIXED (8,2)

DCL NO.	IDENTIFIER	ATTRIBUTES AND REFERENCES
		71,72
24	WALK	AUTOMATIC ALIGNED DECIMAL /* SINGLE */ FLOAT (6) 143,145
2	XCO	AUTOMATIC ALIGNED DECIMAL FIXED (8,1) 32,33,57,59,59,60
2	YCO	AUTOMATIC ALIGNED DECIMAL FIXED (8,1) 34,35,58,59,59,60

AGGREGATE LENGTH TABLE

DCL NO.	IDENTIFIER	LVL	DIMS	OFFSET	ELEMENT LENGTH.	TOTAL LENGTH.
9	ARBA		1		3	4845
10	ARCUFT		1		3	4845
8	ARDIAM		1		3	4845
6	ARXCO		1		5	8075
7	ARYCO		1		5	8075
3	TREE	1			9	9
	DIAM	2			3	
	BA	2		3	3	
	CUFT	2		6	3	

SUM OF CONSTANT LENGTHS 30694

STORAGE REQUIREMENTS

BLOCK, SECTION OR STATEMENT	TYPE	LENGTH	(HEX)	DSA SIZE	(HEX)
**TREES1	PROGRAM CSECT	9092	2384		
**TREES2	STATIC CSECT	3072	C00		
TREES	PROCEDURE BLOCK	9090	2382	31328	7A60

TABLES OF OFFSETS AND STATEMENT NUMBERS

WITHIN PROCEDURE TREES

OFFSET (HEX)	0	8C	94	9C	A2	A8	11E	13A	1B0	1CC	242	25E	2D4	2F0	366
STATEMENT NO.	1	28	29	30	31	32	33	34	35	36	37	38	39	40	41
OFFSET (HEX)	37E	38E	3A0	3E2	3E8	3EE	3F4	3FA	400	406	418	42A	490	496	49C
STATEMENT NO.	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
OFFSET (HEX)	4A2	4BE	4DA	532	5F6	61C	638	650	6F0	718	75A	760	766	76C	772
STATEMENT NO.	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71
OFFSET (HEX)	78A	790	7AC	7AC	7AC	7BC	808	85C	862	8B6	8D6	8DC	8E6	912	91C
STATEMENT NO.	72	73	74	75	76	77	78	79	80	81	82	83	52	84	51
OFFSET (HEX)	948	96C	990	A02	A6E	A8C	AAA	C4A	C86	D26	E46	E9E	101E	105A	10FE
STATEMENT NO.	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99
OFFSET (HEX)	11A0	1242	12E4	1390	1432	14D4	1516	1548	1582	15B2	1500	1624	16A4	16F8	174C
STATEMENT NO.	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114
OFFSET (HEX)	17A0	17F4	1848	188A	18DE	1932	1986	19DA	1A2E	1A82	1AD6	1B2A	1BAA	1C2A	1C94
STATEMENT NO.	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129
OFFSET (HEX)	1CC4	1CEA	1D5C	1E32	1EC8	1EEE	1F42	1F96	1FD4	1FE6	1FF0	201A	2042	2042	20E2
STATEMENT NO.	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144
OFFSET (HEX)	2176	21A6	21B0	2230	2230	223A	22BA	22BA	22C4	22DE	22E8	236A			
STATEMENT NO.	145	146	147	148	149	150	151	152	138	153	43	154			

NO MESSAGES PRODUCED FOR THIS COMPILATION

COMPILE TIME 0.05 MINS SPILL FILE: 0 RECORDS, SIZE 4051

OS/360 LOADER

OPTIONS USED - PRINT,MAP,LET,CALL,NORES,NOTERM,SIZE=247808,NAME=**GO

NAME	TYPE	ADDR	NAME	TYPE	ADDR	NAME	TYPE	ADDR	NAME	TYPE	ADDR	NAME	TYPE	ADDR
PLISTART	SD	23B810	**TREES1	SD	23B858	**TREES2	SD	23DBE0	PLICALLA	LR	23B816	PLICALLB	LR	23B81A
PLIMAIN	SD	23E7E0	IELCGIA	SD	23E7E8	IELCGIB	SD	23E858	TREES	LR	23B860	SYSPINT	SD	23E898
SYSIN	SD	23E8B8	IBMBPIR1*	SD	23E8D8	IBMBPIRA*	LR	23E8FA	IBMBPIRB*	LR	23E8FC	IBMBPIRC*	LR	23E8FE
IBMBSIO1*	SD	23EBC8	IBMBSIOA*	LR	23EBC8	IBMBSIOB*	LR	23EBCA	IBMBSIOC*	LR	23EBCC	IBMBSIOD*	LR	23EBCE
IBMBSIOE*	LR	23EBD0	IBMBSIOT*	LR	23ED86	IBMBCAC1*	SD	23EE28	IBMBCACA*	LR	23EE28	IBMBCTO1*	SD	23F110
IBMBCTHD*	LR	23F110	IBMBCTHX*	LR	23F118	IBMBCTHF*	LR	23F120	IBMBCTHP*	LR	23F128	IBMBCTHE*	LR	23F130
IBMBCWO1*	SD	23F3B0	IBMBCWDH*	LR	23F3B0	IBMBCWZH*	LR	23F3B0	IBMBMYL1*	SD	23F5A0	IBMBMYLA*	LR	23F5A0
IBMBMYS1*	SD	23F640	IBMBMYSA*	LR	23F640	IBMBOCL1*	SD	23F6D8	IBMBOCLA*	LR	23F6D8	IBMBOCLB*	LR	23F6DA
IBMBOCLC*	LR	23F6DC	IBMBOCLD*	LR	23F6DE	IBMBSDO1*	SD	23F848	IBMBSDOD*	LR	23F848	IBMBSDOC*	LR	23F84A
IBMBSDOB*	LR	23F84C	IBMBSDOA*	LR	23F84E	IBMBSDOT*	LR	23FB1E	IBMBSEI1*	SD	23FDC0	IBMBSEIA*	LR	23FDC0
IBMBSEIT*	LR	23FF7A	IBMBSFI1*	SD	23FFD0	IBMBSFIA*	LR	23FFD0	IBMBSFIR*	LR	2400BE	IBMBSII1*	SD	2400C0
IBMBSIIA*	LR	2400C0	IBMBSIIB*	LR	2400C2	IBMBSIIC*	LR	2400C4	IBMBSIID*	LR	2400C6	IBMBSIIT*	LR	2400C8
IBMBSLO1*	SD	2402E8	IBMBSLOA*	LR	2402E8	IBMBSLOB*	LR	2402EA	IBMBSPL1*	SD	2409C8	IBMBSPLA*	LR	2409C8
IBMBSPLB*	LR	2409CA	IBMBSPLC*	LR	2409CC	IBMBSXC1*	SD	240C98	IBMBSXCA*	LR	240C98	IBMBSXCB*	LR	240C9A
IBMBSXCC*	LR	240C9C	IBMBSXCD*	LR	240C9E	IBMBCK01*	SD	240EB0	IBMBCKDP*	LR	240EB0	IBMBCKZP*	LR	240EB0
IBMBCKDD*	LR	240EB8	IBMBCKZD*	LR	240EB8	IBMBERR1*	SD	241030	IBMBERRA*	LR	241030	IBMBERRB*	LR	241072
IBMBERRC*	LR	241654	IBMBEER1*	SD	241700	IBMBEERA*	LR	241700	IBMBSCV1*	SD	241708	IBMBSCVA*	LR	241708
IBMBMBL1*	SD	241948	IBMBMBLA*	LR	241948	IBMBMDL1*	SD	241B10	IBMBMDLC*	LR	241B10	IBMBMDLB*	LR	241B12
IBMBMDLA*	LR	241B16	IBMBMBS1*	SD	241C68	IBMBMBSA*	LR	241C68	IBMBMDS1*	SD	241D68	IBMBMDSC*	LR	241D68
IBMBMDSB*	LR	241D6A	IBMBMDSA*	LR	241D6E	IBMBEEF1*	SD	241E70	IBMBEEFA*	LR	241E70			

SYSIN PR 00

TOTAL LENGTH 67B0
ENTRY ADDRESS 23B810

BAF= 5;

SAMPLE POINT COORDINATES ARE 1075.0 1100.0

DIAM=	17.80	BA=	1.72	CUFT=	41.57	VBAR=	24.16	DIST=	57.6;
DIAM=	7.50	BA=	0.30	CUFT=	5.17	VBAR=	17.23	DIST=	19.7;
DIAM=	8.10	BA=	0.35	CUFT=	6.18	VBAR=	17.65	DIST=	18.3;
DIAM=	15.60	BA=	1.32	CUFT=	29.89	VBAR=	22.64	DIST=	44.1;
DIAM=	9.70	BA=	0.51	CUFT=	9.44	VBAR=	18.50	DIST=	34.3;
DIAM=	16.10	BA=	1.41	CUFT=	32.33	VBAR=	22.92	DIST=	43.3;
DIAM=	17.20	BA=	1.61	CUFT=	38.14	VBAR=	23.68	DIST=	22.8;
DIAM=	11.10	BA=	0.67	CUFT=	13.02	VBAR=	19.43	DIST=	37.4;
DIAM=	11.90	BA=	0.77	CUFT=	15.39	VBAR=	19.98	DIST=	42.6;
DIAM=	7.10	BA=	0.27	CUFT=	4.55	VBAR=	16.85	DIST=	22.8;
DIAM=	5.20	BA=	0.14	CUFT=	2.25	VBAR=	16.07	DIST=	5.5;
DIAM=	8.50	BA=	0.39	CUFT=	6.92	VBAR=	17.74	DIST=	32.8;
DIAM=	13.10	BA=	0.93	CUFT=	19.44	VBAR=	20.90	DIST=	50.7;
DIAM=	14.50	BA=	1.14	CUFT=	24.94	VBAR=	21.87	DIST=	26.5;
DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST=	46.9;
DIAM=	17.80	BA=	1.72	CUFT=	41.57	VBAR=	24.16	DIST=	65.8;
DIAM=	17.30	BA=	1.63	CUFT=	38.70	VBAR=	23.74	DIST=	65.0;
DIAM=	16.10	BA=	1.41	CUFT=	32.33	VBAR=	22.92	DIST=	62.0;
DIAM=	12.00	BA=	0.78	CUFT=	15.71	VBAR=	20.14	DIST=	35.4;
DIAM=	22.00	BA=	2.63	CUFT=	71.26	VBAR=	27.09	DIST=	10.7;
DIAM=	18.60	BA=	1.88	CUFT=	46.45	VBAR=	24.70	DIST=	57.5;
DIAM=	20.80	BA=	2.35	CUFT=	61.72	VBAR=	26.26	DIST=	56.1;
DIAM=	7.90	BA=	0.34	CUFT=	5.83	VBAR=	17.14	DIST=	10.7;
DIAM=	6.00	BA=	0.19	CUFT=	3.10	VBAR=	16.31	DIST=	23.3;
DIAM=	9.90	BA=	0.53	CUFT=	9.91	VBAR=	18.69	DIST=	35.9;
DIAM=	14.20	BA=	1.09	CUFT=	23.69	VBAR=	21.73	DIST=	33.9;

SUM VBAR SQUARED = 297897.63

RUNNING TOTAL VBAR SQUARED = 297897.63

SAMPLE POINT COORDINATES ARE 1075.0 1407.5

DIAM=	11.80	BA=	0.75	CUFT=	15.08	VBAR=	20.10	DIST=	43.7;
DIAM=	14.80	BA=	1.19	CUFT=	26.24	VBAR=	22.05	DIST=	49.1;
DIAM=	16.00	BA=	1.39	CUFT=	31.83	VBAR=	22.89	DIST=	50.4;
DIAM=	12.10	BA=	0.79	CUFT=	16.03	VBAR=	20.29	DIST=	43.5;
DIAM=	6.10	BA=	0.20	CUFT=	3.22	VBAR=	16.10	DIST=	20.1;
DIAM=	14.70	BA=	1.17	CUFT=	25.80	VBAR=	22.05	DIST=	12.6;
DIAM=	9.70	BA=	0.51	CUFT=	9.44	VBAR=	18.50	DIST=	12.9;
DIAM=	13.40	BA=	0.97	CUFT=	20.55	VBAR=	21.18	DIST=	30.4;
DIAM=	14.10	BA=	1.08	CUFT=	23.28	VBAR=	21.55	DIST=	53.2;
DIAM=	12.30	BA=	0.82	CUFT=	16.68	VBAR=	20.34	DIST=	35.0;
DIAM=	12.20	BA=	0.81	CUFT=	16.35	VBAR=	20.18	DIST=	44.5;
DIAM=	13.60	BA=	1.00	CUFT=	21.31	VBAR=	21.31	DIST=	38.1;
DIAM=	12.70	BA=	0.87	CUFT=	18.03	VBAR=	20.72	DIST=	31.4;
DIAM=	15.30	BA=	1.27	CUFT=	28.49	VBAR=	22.43	DIST=	13.8;
DIAM=	10.30	BA=	0.57	CUFT=	10.89	VBAR=	19.10	DIST=	30.8;
DIAM=	5.20	BA=	0.14	CUFT=	2.25	VBAR=	16.07	DIST=	14.4;

DIAM= 16.30 BA= 1.44 CUFT= 33.34 VBAR= 23.15 DIST= 42.1;
DIAM= 11.00 BA= 0.65 CUFT= 12.74 VBAR= 19.60 DIST= 8.3;
DIAM= 5.50 BA= 0.16 CUFT= 2.55 VBAR= 15.93 DIST= 14.2;
DIAM= 18.50 BA= 1.86 CUFT= 45.82 VBAR= 24.63 DIST= 66.9;
DIAM= 5.80 BA= 0.18 CUFT= 2.87 VBAR= 15.94 DIST= 21.8;
DIAM= 10.50 BA= 0.60 CUFT= 11.40 VBAR= 19.00 DIST= 29.4;

SUM VBAR SQUARED = 196346.47

RUNNING TOTAL VBAR SQUARED = 494244.10

SAMPLE POINT COORDINATES ARE 1075.0 1715.0
DIAM= 17.00 BA= 1.57 CUFT= 37.04 VBAR= 23.59 DIST= 42.2;
DIAM= 14.00 BA= 1.06 CUFT= 22.88 VBAR= 21.58 DIST= 39.9;
DIAM= 8.00 BA= 0.34 CUFT= 6.00 VBAR= 17.64 DIST= 27.5;
DIAM= 8.70 BA= 0.41 CUFT= 7.30 VBAR= 17.80 DIST= 3.9;
DIAM= 8.60 BA= 0.40 CUFT= 7.11 VBAR= 17.77 DIST= 19.7;
DIAM= 9.40 BA= 0.48 CUFT= 8.76 VBAR= 18.25 DIST= 33.8;
DIAM= 16.20 BA= 1.43 CUFT= 32.84 VBAR= 22.96 DIST= 36.2;
DIAM= 13.80 BA= 1.03 CUFT= 22.08 VBAR= 21.43 DIST= 36.5;
DIAM= 13.70 BA= 1.02 CUFT= 21.69 VBAR= 21.26 DIST= 30.4;
DIAM= 11.90 BA= 0.77 CUFT= 15.39 VBAR= 19.98 DIST= 17.9;
DIAM= 10.00 BA= 0.54 CUFT= 10.15 VBAR= 18.79 DIST= 23.2;
DIAM= 8.70 BA= 0.41 CUFT= 7.30 VBAR= 17.80 DIST= 29.5;
DIAM= 10.90 BA= 0.64 CUFT= 12.46 VBAR= 19.46 DIST= 17.0;
DIAM= 10.70 BA= 0.62 CUFT= 11.92 VBAR= 19.22 DIST= 6.2;
DIAM= 10.50 BA= 0.60 CUFT= 11.40 VBAR= 19.00 DIST= 38.8;
DIAM= 10.70 BA= 0.62 CUFT= 11.92 VBAR= 19.22 DIST= 41.2;
DIAM= 15.70 BA= 1.34 CUFT= 30.37 VBAR= 22.66 DIST= 39.0;
DIAM= 14.00 BA= 1.06 CUFT= 22.88 VBAR= 21.58 DIST= 38.8;
DIAM= 20.90 BA= 2.38 CUFT= 62.48 VBAR= 26.25 DIST= 42.9;
DIAM= 14.10 BA= 1.08 CUFT= 23.28 VBAR= 21.55 DIST= 39.4;
DIAM= 17.70 BA= 1.70 CUFT= 40.99 VBAR= 24.11 DIST= 50.6;
DIAM= 16.70 BA= 1.52 CUFT= 35.43 VBAR= 23.30 DIST= 16.1;
DIAM= 9.60 BA= 0.50 CUFT= 9.21 VBAR= 18.42 DIST= 23.9;

SUM VBAR SQUARED = 224315.90

RUNNING TOTAL VBAR SQUARED = 718560.00

SAMPLE POINT COORDINATES ARE 1280.0 1100.0
DIAM= 9.70 BA= 0.51 CUFT= 9.44 VBAR= 18.50 DIST= 17.4;
DIAM= 14.60 BA= 1.16 CUFT= 25.37 VBAR= 21.87 DIST= 53.1;
DIAM= 7.80 BA= 0.33 CUFT= 5.66 VBAR= 17.15 DIST= 29.2;
DIAM= 8.90 BA= 0.43 CUFT= 7.70 VBAR= 17.90 DIST= 30.1;
DIAM= 9.80 BA= 0.52 CUFT= 9.67 VBAR= 18.59 DIST= 17.0;
DIAM= 16.00 BA= 1.39 CUFT= 31.83 VBAR= 22.89 DIST= 58.6;
DIAM= 13.40 BA= 0.97 CUFT= 20.55 VBAR= 21.18 DIST= 45.5;
DIAM= 18.00 BA= 1.76 CUFT= 42.76 VBAR= 24.29 DIST= 52.6;
DIAM= 12.90 BA= 0.90 CUFT= 18.73 VBAR= 20.81 DIST= 37.9;
DIAM= 12.20 BA= 0.81 CUFT= 16.35 VBAR= 20.18 DIST= 25.8;
DIAM= 9.30 BA= 0.47 CUFT= 8.54 VBAR= 18.17 DIST= 24.1;
DIAM= 12.90 BA= 0.90 CUFT= 18.73 VBAR= 20.81 DIST= 30.0;
DIAM= 12.90 BA= 0.90 CUFT= 18.73 VBAR= 20.81 DIST= 19.9;
DIAM= 14.80 BA= 1.19 CUFT= 26.24 VBAR= 22.05 DIST= 29.7;
DIAM= 10.90 BA= 0.64 CUFT= 12.46 VBAR= 19.46 DIST= 18.7;
DIAM= 5.60 BA= 0.17 CUFT= 2.65 VBAR= 15.58 DIST= 7.3;
DIAM= 8.00 BA= 0.34 CUFT= 6.00 VBAR= 17.64 DIST= 7.9;
DIAM= 12.30 BA= 0.82 CUFT= 16.68 VBAR= 20.34 DIST= 27.1;
DIAM= 11.00 BA= 0.65 CUFT= 12.74 VBAR= 19.60 DIST= 22.2;

DIAM=	8.60	BA=	0.40	CUFT=	7.11	VBAR=	17.77	DIST=	7.6;		
DIAM=	5.60	BA=	0.17	CUFT=	2.65	VBAR=	15.58	DIST=	19.5;		
DIAM=	15.30	BA=	1.27	CUFT=	28.49	VBAR=	22.43	DIST=	52.0;		
DIAM=	12.00	BA=	0.78	CUFT=	15.71	VBAR=	20.14	DIST=	15.7;		
DIAM=	8.90	BA=	0.43	CUFT=	7.70	VBAR=	17.90	DIST=	33.2;		
DIAM=	10.30	BA=	0.57	CUFT=	10.89	VBAR=	19.10	DIST=	35.7;		
DIAM=	16.20	BA=	1.43	CUFT=	32.84	VBAR=	22.96	DIST=	54.2;		
DIAM=	16.60	BA=	1.50	CUFT=	34.90	VBAR=	23.26	DIST=	55.5;		
DIAM=	18.20	BA=	1.80	CUFT=	43.97	VBAR=	24.42	DIST=	26.1;		
DIAM=	10.40	BA=	0.58	CUFT=	11.14	VBAR=	19.20	DIST=	22.2;		
DIAM=	14.20	BA=	1.09	CUFT=	23.69	VBAR=	21.73	DIST=	39.9;		

SUM VBAR SQUARED = 362777.33

RUNNING TOTAL VBAR SQUARED = 1081337.33

SAMPLE POINT COORDINATES ARE 1280.0 1407.5

DIAM=	7.30	BA=	0.29	CUFT=	4.86	VBAR=	16.75	DIST=	24.3;		
DIAM=	13.40	BA=	0.97	CUFT=	20.55	VBAR=	21.18	DIST=	34.9;		
DIAM=	17.10	BA=	1.59	CUFT=	37.59	VBAR=	23.64	DIST=	55.7;		
DIAM=	16.30	BA=	1.44	CUFT=	33.34	VBAR=	23.15	DIST=	40.8;		
DIAM=	17.90	BA=	1.74	CUFT=	42.17	VBAR=	24.23	DIST=	46.9;		
DIAM=	7.00	BA=	0.26	CUFT=	4.41	VBAR=	16.96	DIST=	23.3;		
DIAM=	13.00	BA=	0.92	CUFT=	19.08	VBAR=	20.73	DIST=	23.7;		
DIAM=	9.60	BA=	0.50	CUFT=	9.21	VBAR=	18.42	DIST=	6.6;		
DIAM=	15.70	BA=	1.34	CUFT=	30.37	VBAR=	22.66	DIST=	38.4;		
DIAM=	9.20	BA=	0.46	CUFT=	8.33	VBAR=	18.10	DIST=	13.3;		
DIAM=	16.00	BA=	1.39	CUFT=	31.83	VBAR=	22.89	DIST=	42.0;		
DIAM=	13.20	BA=	0.95	CUFT=	19.81	VBAR=	20.85	DIST=	39.0;		
DIAM=	18.00	BA=	1.76	CUFT=	42.76	VBAR=	24.29	DIST=	61.6;		
DIAM=	15.20	BA=	1.26	CUFT=	28.03	VBAR=	22.24	DIST=	28.8;		

SUM VBAR SQUARED = 87669.28

RUNNING TOTAL VBAR SQUARED = 1169006.61

SAMPLE POINT COORDINATES ARE 1280.0 1715.0

DIAM=	11.80	BA=	0.75	CUFT=	15.08	VBAR=	20.10	DIST=	28.0;		
DIAM=	9.50	BA=	0.49	CUFT=	8.98	VBAR=	18.32	DIST=	22.5;		
DIAM=	16.10	BA=	1.41	CUFT=	32.33	VBAR=	22.92	DIST=	42.9;		
DIAM=	14.90	BA=	1.21	CUFT=	26.68	VBAR=	22.04	DIST=	51.9;		
DIAM=	11.30	BA=	0.69	CUFT=	13.59	VBAR=	19.69	DIST=	16.1;		
DIAM=	5.20	BA=	0.14	CUFT=	2.25	VBAR=	16.07	DIST=	18.5;		
DIAM=	5.50	BA=	0.16	CUFT=	2.55	VBAR=	15.93	DIST=	2.9;		
DIAM=	8.20	BA=	0.36	CUFT=	6.36	VBAR=	17.66	DIST=	25.8;		
DIAM=	11.30	BA=	0.69	CUFT=	13.59	VBAR=	19.69	DIST=	20.4;		
DIAM=	11.20	BA=	0.68	CUFT=	13.30	VBAR=	19.55	DIST=	39.9;		
DIAM=	19.20	BA=	2.01	CUFT=	50.34	VBAR=	25.04	DIST=	42.7;		
DIAM=	11.60	BA=	0.73	CUFT=	14.47	VBAR=	19.82	DIST=	40.9;		
DIAM=	6.90	BA=	0.25	CUFT=	4.27	VBAR=	17.08	DIST=	25.8;		
DIAM=	5.00	BA=	0.13	CUFT=	2.06	VBAR=	15.84	DIST=	18.2;		
DIAM=	6.10	BA=	0.20	CUFT=	3.22	VBAR=	16.10	DIST=	8.7;		
DIAM=	11.10	BA=	0.67	CUFT=	13.02	VBAR=	19.43	DIST=	22.3;		
DIAM=	10.30	BA=	0.57	CUFT=	10.89	VBAR=	19.10	DIST=	22.7;		
DIAM=	12.10	BA=	0.79	CUFT=	16.03	VBAR=	20.29	DIST=	28.5;		
DIAM=	16.40	BA=	1.46	CUFT=	33.86	VBAR=	23.19	DIST=	45.0;		
DIAM=	15.30	BA=	1.27	CUFT=	28.49	VBAR=	22.43	DIST=	47.3;		
DIAM=	17.00	BA=	1.57	CUFT=	37.04	VBAR=	23.59	DIST=	65.0;		
DIAM=	6.90	BA=	0.25	CUFT=	4.27	VBAR=	17.08	DIST=	3.3;		
DIAM=	6.40	BA=	0.22	CUFT=	3.59	VBAR=	16.31	DIST=	7.8;		

DIAM= 6.10 BA= 0.20 CUFT= 3.22 VBAR= 16.10 DIST= 8.0;

SUM VBAR SQUARED = 214711.75

RUNNING TOTAL VBAR SQUARED = 1383718.36

SAMPLE POINT COORDINATES ARE 1485.0 1100.0

DIAM= 13.30 BA= 0.96 CUFT= 20.18 VBAR= 21.02 DIST= 37.5;
DIAM= 13.60 BA= 1.00 CUFT= 21.31 VBAR= 21.31 DIST= 36.0;
DIAM= 13.70 BA= 1.02 CUFT= 21.69 VBAR= 21.26 DIST= 22.9;
DIAM= 6.70 BA= 0.24 CUFT= 3.99 VBAR= 16.62 DIST= 24.9;
DIAM= 17.00 BA= 1.57 CUFT= 37.04 VBAR= 23.59 DIST= 31.3;
DIAM= 13.10 BA= 0.93 CUFT= 19.44 VBAR= 20.90 DIST= 43.2;
DIAM= 17.70 BA= 1.70 CUFT= 40.99 VBAR= 24.11 DIST= 63.3;
DIAM= 16.20 BA= 1.43 CUFT= 32.84 VBAR= 22.96 DIST= 44.0;
DIAM= 13.90 BA= 1.05 CUFT= 22.48 VBAR= 21.40 DIST= 26.4;
DIAM= 15.70 BA= 1.34 CUFT= 30.37 VBAR= 22.66 DIST= 15.8;
DIAM= 5.60 BA= 0.17 CUFT= 2.65 VBAR= 15.58 DIST= 10.8;
DIAM= 5.70 BA= 0.17 CUFT= 2.76 VBAR= 16.23 DIST= 20.1;
DIAM= 10.60 BA= 0.61 CUFT= 11.66 VBAR= 19.11 DIST= 13.0;
DIAM= 9.80 BA= 0.52 CUFT= 9.67 VBAR= 18.59 DIST= 23.7;
DIAM= 17.40 BA= 1.65 CUFT= 39.27 VBAR= 23.80 DIST= 6.2;
DIAM= 10.00 BA= 0.54 CUFT= 10.15 VBAR= 18.79 DIST= 37.7;
DIAM= 13.10 BA= 0.93 CUFT= 19.44 VBAR= 20.90 DIST= 9.5;
DIAM= 10.00 BA= 0.54 CUFT= 10.15 VBAR= 18.79 DIST= 17.2;
DIAM= 11.50 BA= 0.72 CUFT= 14.18 VBAR= 19.69 DIST= 44.0;
DIAM= 14.90 BA= 1.21 CUFT= 26.68 VBAR= 22.04 DIST= 48.3;
DIAM= 11.20 BA= 0.68 CUFT= 13.30 VBAR= 19.55 DIST= 43.1;
DIAM= 22.00 BA= 2.63 CUFT= 71.26 VBAR= 27.09 DIST= 51.8;
DIAM= 14.60 BA= 1.16 CUFT= 25.37 VBAR= 21.87 DIST= 40.6;

SUM VBAR SQUARED = 228350.17

RUNNING TOTAL VBAR SQUARED = 1612068.53

SAMPLE POINT COORDINATES ARE 1485.0 1407.5

DIAM= 11.10 BA= 0.67 CUFT= 13.02 VBAR= 19.43 DIST= 27.1;
DIAM= 18.60 BA= 1.88 CUFT= 46.45 VBAR= 24.70 DIST= 31.9;
DIAM= 18.70 BA= 1.90 CUFT= 47.09 VBAR= 24.78 DIST= 25.2;
DIAM= 18.00 BA= 1.76 CUFT= 42.76 VBAR= 24.29 DIST= 23.5;
DIAM= 14.50 BA= 1.14 CUFT= 24.94 VBAR= 21.87 DIST= 54.7;
DIAM= 20.30 BA= 2.24 CUFT= 58.00 VBAR= 25.89 DIST= 67.3;
DIAM= 16.00 BA= 1.39 CUFT= 31.83 VBAR= 22.89 DIST= 18.4;
DIAM= 14.40 BA= 1.13 CUFT= 24.52 VBAR= 21.69 DIST= 53.6;
DIAM= 12.80 BA= 0.89 CUFT= 18.37 VBAR= 20.64 DIST= 7.6;
DIAM= 17.00 BA= 1.57 CUFT= 37.04 VBAR= 23.59 DIST= 8.0;
DIAM= 9.00 BA= 0.44 CUFT= 7.91 VBAR= 17.97 DIST= 14.8;
DIAM= 14.70 BA= 1.17 CUFT= 25.80 VBAR= 22.05 DIST= 47.9;
DIAM= 15.70 BA= 1.34 CUFT= 30.37 VBAR= 22.66 DIST= 51.9;
DIAM= 10.30 BA= 0.57 CUFT= 10.89 VBAR= 19.10 DIST= 29.2;
DIAM= 10.50 BA= 0.60 CUFT= 11.40 VBAR= 19.00 DIST= 26.4;

SUM VBAR SQUARED = 109263.30

RUNNING TOTAL VBAR SQUARED = 1721331.83

SAMPLE POINT COORDINATES ARE 1485.0 1715.0

DIAM= 14.70 BA= 1.17 CUFT= 25.80 VBAR= 22.05 DIST= 52.7;
DIAM= 5.30 BA= 0.15 CUFT= 2.34 VBAR= 15.60 DIST= 14.3;
DIAM= 9.20 BA= 0.46 CUFT= 8.33 VBAR= 18.10 DIST= 28.5;

DIAM=	13.60	BA=	1.00	CUFT=	21.31	VBAR=	21.31	DIST=	44.4;
DIAM=	11.30	BA=	0.69	CUFT=	13.59	VBAR=	19.69	DIST=	37.9;
DIAM=	8.70	BA=	0.41	CUFT=	7.30	VBAR=	17.80	DIST=	16.7;
DIAM=	16.90	BA=	1.55	CUFT=	36.50	VBAR=	23.54	DIST=	28.5;
DIAM=	20.80	BA=	2.35	CUFT=	61.72	VBAR=	26.26	DIST=	47.9;
DIAM=	7.00	BA=	0.26	CUFT=	4.41	VBAR=	16.96	DIST=	10.8;
DIAM=	10.90	BA=	0.64	CUFT=	12.46	VBAR=	19.46	DIST=	10.6;
DIAM=	6.80	BA=	0.25	CUFT=	4.12	VBAR=	16.48	DIST=	19.9;
DIAM=	6.10	BA=	0.20	CUFT=	3.22	VBAR=	16.10	DIST=	21.8;
DIAM=	6.20	BA=	0.20	CUFT=	3.34	VBAR=	16.70	DIST=	23.3;
DIAM=	13.50	BA=	0.99	CUFT=	20.93	VBAR=	21.14	DIST=	21.6;
DIAM=	11.90	BA=	0.77	CUFT=	15.39	VBAR=	19.98	DIST=	41.9;
DIAM=	12.30	BA=	0.82	CUFT=	16.68	VBAR=	20.34	DIST=	33.9;

SUM VBAR SQUARED = 97038.48

RUNNING TOTAL VBAR SQUARED = 1818370.31

A= 25.01 B= 12.91;

TOTAL NUMBER OF TREES SAMPLED = 193

AVERAGE TREE COUNT = 21.44

SUM VBAR = 3944.22

AVERAGE VBAR= 20.43

BASAL AREA PER ACRE = 107.22

AVERAGE VOLUME PER ACRE = 2190.50

TOTAL VOLUME IN CUBIC FEET = 25344.08

CVTC= 25.01 STDETC= 5.36 STDEVBR= 2.63 CVVBAR= 12.91;

STANDARD ERROR = 176.60

SAMPLING ERROR % = 8.06

COEFF. OF VARIATION % = 24.17

STANDARD ERROR OF MEAN TREE COUNT = 1.79

STANDARD ERROR OF MEAN VBAR = 0.19

SAMPLING ERROR OF TREE COUNT % = 8.34

SAMPLING ERROR OF VBAR % = 0.93

COMBINED SAMPLING ERROR TC & VBAR % = 8.39

OPTIMUM NUMBER OF TREE COUNT POINTS = 12.51

OPTIMUM NUMBER MEASUREMENT POINTS = 0.15

RATIO OF TREE COUNT POINTS TO MEASUREMENT POINTS IS 80 TO 1

PRACTICAL NUMBER OF TREE COUNT POINTS IS 7.00

PRACTICAL NUMBER OF MEASUREMENT POINTS IS 1.00

COST FOR COMBINED SAMPLING ERROR OF 10%

OPTIMUM COST = 27.02

PRACTICAL COST = 23.69

BAF= 10;

SAMPLE POINT COORDINATES ARE 1075.0 1100.0

DIAM=	7.50	BA=	0.30	CUFT=	5.17	VBAR=	17.23	DIST=	19.7;
DIAM=	8.10	BA=	0.35	CUFT=	6.18	VBAR=	17.65	DIST=	18.3;
DIAM=	16.10	BA=	1.41	CUFT=	32.33	VBAR=	22.92	DIST=	43.3;
DIAM=	17.20	BA=	1.61	CUFT=	38.14	VBAR=	23.68	DIST=	22.8;
DIAM=	5.20	BA=	0.14	CUFT=	2.25	VBAR=	16.07	DIST=	5.5;
DIAM=	14.50	BA=	1.14	CUFT=	24.94	VBAR=	21.87	DIST=	26.5;
DIAM=	22.00	BA=	2.63	CUFT=	71.26	VBAR=	27.09	DIST=	10.7;
DIAM=	20.80	BA=	2.35	CUFT=	61.72	VBAR=	26.26	DIST=	56.1;
DIAM=	7.90	BA=	0.34	CUFT=	5.83	VBAR=	17.14	DIST=	10.7;
DIAM=	14.20	BA=	1.09	CUFT=	23.69	VBAR=	21.73	DIST=	33.9;

SUM VBAR SQUARED = 44791.48

RUNNING TOTAL VBAR SQUARED = 44791.48

SAMPLE POINT COORDINATES ARE 1075.0 1407.5

DIAM=	14.70	BA=	1.17	CUFT=	25.80	VBAR=	22.05	DIST=	12.6;
DIAM=	9.70	BA=	0.51	CUFT=	9.44	VBAR=	18.50	DIST=	12.9;
DIAM=	13.40	BA=	0.97	CUFT=	20.55	VBAR=	21.18	DIST=	30.4;
DIAM=	12.70	BA=	0.87	CUFT=	18.03	VBAR=	20.72	DIST=	31.4;
DIAM=	15.30	BA=	1.27	CUFT=	28.49	VBAR=	22.43	DIST=	13.8;
DIAM=	16.30	BA=	1.44	CUFT=	33.34	VBAR=	23.15	DIST=	42.1;
DIAM=	11.00	BA=	0.65	CUFT=	12.74	VBAR=	19.60	DIST=	8.3;
DIAM=	5.50	BA=	0.16	CUFT=	2.55	VBAR=	15.93	DIST=	14.2;

SUM VBAR SQUARED = 26751.87

RUNNING TOTAL VBAR SQUARED = 71543.35

SAMPLE POINT COORDINATES ARE 1075.0 1715.0

DIAM=	17.00	BA=	1.57	CUFT=	37.04	VBAR=	23.59	DIST=	42.2;
DIAM=	8.70	BA=	0.41	CUFT=	7.30	VBAR=	17.80	DIST=	3.9;
DIAM=	8.60	BA=	0.40	CUFT=	7.11	VBAR=	17.77	DIST=	19.7;
DIAM=	16.20	BA=	1.43	CUFT=	32.84	VBAR=	22.96	DIST=	36.2;
DIAM=	13.80	BA=	1.03	CUFT=	22.08	VBAR=	21.43	DIST=	36.5;
DIAM=	13.70	BA=	1.02	CUFT=	21.69	VBAR=	21.26	DIST=	30.4;
DIAM=	11.90	BA=	0.77	CUFT=	15.39	VBAR=	19.98	DIST=	17.9;
DIAM=	10.00	BA=	0.54	CUFT=	10.15	VBAR=	18.79	DIST=	23.2;
DIAM=	10.90	BA=	0.64	CUFT=	12.46	VBAR=	19.46	DIST=	17.0;
DIAM=	10.70	BA=	0.62	CUFT=	11.92	VBAR=	19.22	DIST=	6.2;
DIAM=	15.70	BA=	1.34	CUFT=	30.37	VBAR=	22.66	DIST=	39.0;
DIAM=	20.90	BA=	2.38	CUFT=	62.48	VBAR=	26.25	DIST=	42.9;
DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST=	16.1;

DIAM= 9.60 BA= 0.50 CUFT= 9.21 VBAR= 18.42 DIST= 23.9;

SUM VBAR SQUARED = 85784.55

RUNNING TOTAL VBAR SQUARED = 157327.90

SAMPLE POINT COORDINATES ARE 1280.0 1100.0

DIAM= 9.70 BA= 0.51 CUFT= 9.44 VBAR= 18.50 DIST= 17.4;
DIAM= 9.80 BA= 0.52 CUFT= 9.67 VBAR= 18.59 DIST= 17.0;
DIAM= 12.20 BA= 0.81 CUFT= 16.35 VBAR= 20.18 DIST= 25.8;
DIAM= 9.30 BA= 0.47 CUFT= 8.54 VBAR= 18.17 DIST= 24.1;
DIAM= 12.90 BA= 0.90 CUFT= 18.73 VBAR= 20.81 DIST= 30.0;
DIAM= 12.90 BA= 0.90 CUFT= 18.73 VBAR= 20.81 DIST= 19.9;
DIAM= 14.80 BA= 1.19 CUFT= 26.24 VBAR= 22.05 DIST= 29.7;
DIAM= 10.90 BA= 0.64 CUFT= 12.46 VBAR= 19.46 DIST= 18.7;
DIAM= 5.60 BA= 0.17 CUFT= 2.65 VBAR= 15.58 DIST= 7.3;
DIAM= 8.00 BA= 0.34 CUFT= 6.00 VBAR= 17.64 DIST= 7.9;
DIAM= 12.30 BA= 0.82 CUFT= 16.68 VBAR= 20.34 DIST= 27.1;
DIAM= 11.00 BA= 0.65 CUFT= 12.74 VBAR= 19.60 DIST= 22.2;
DIAM= 8.60 BA= 0.40 CUFT= 7.11 VBAR= 17.77 DIST= 7.6;
DIAM= 12.00 BA= 0.78 CUFT= 15.71 VBAR= 20.14 DIST= 15.7;
DIAM= 18.20 BA= 1.80 CUFT= 43.97 VBAR= 24.42 DIST= 26.1;
DIAM= 10.40 BA= 0.58 CUFT= 11.14 VBAR= 19.20 DIST= 22.2;

SUM VBAR SQUARED = 98131.82

RUNNING TOTAL VBAR SQUARED = 255459.72

SAMPLE POINT COORDINATES ARE 1280.0 1407.5

DIAM= 13.40 BA= 0.97 CUFT= 20.55 VBAR= 21.18 DIST= 34.9;
DIAM= 16.30 BA= 1.44 CUFT= 33.34 VBAR= 23.15 DIST= 40.8;
DIAM= 17.90 BA= 1.74 CUFT= 42.17 VBAR= 24.23 DIST= 46.9;
DIAM= 13.00 BA= 0.92 CUFT= 19.08 VBAR= 20.73 DIST= 23.7;
DIAM= 9.60 BA= 0.50 CUFT= 9.21 VBAR= 18.42 DIST= 6.6;
DIAM= 15.70 BA= 1.34 CUFT= 30.37 VBAR= 22.66 DIST= 38.4;
DIAM= 9.20 BA= 0.46 CUFT= 8.33 VBAR= 18.10 DIST= 13.3;
DIAM= 16.00 BA= 1.39 CUFT= 31.83 VBAR= 22.89 DIST= 42.0;
DIAM= 15.20 BA= 1.26 CUFT= 28.03 VBAR= 22.24 DIST= 28.8;

SUM VBAR SQUARED = 37480.96

RUNNING TOTAL VBAR SQUARED = 292940.68

SAMPLE POINT COORDINATES ARE 1280.0 1715.0

DIAM= 11.80 BA= 0.75 CUFT= 15.08 VBAR= 20.10 DIST= 28.0;
DIAM= 9.50 BA= 0.49 CUFT= 8.98 VBAR= 18.32 DIST= 22.5;
DIAM= 16.10 BA= 1.41 CUFT= 32.33 VBAR= 22.92 DIST= 42.9;
DIAM= 11.30 BA= 0.69 CUFT= 13.59 VBAR= 19.69 DIST= 16.1;
DIAM= 5.50 BA= 0.16 CUFT= 2.55 VBAR= 15.93 DIST= 2.9;
DIAM= 11.30 BA= 0.69 CUFT= 13.59 VBAR= 19.69 DIST= 20.4;
DIAM= 19.20 BA= 2.01 CUFT= 50.34 VBAR= 25.04 DIST= 42.7;
DIAM= 6.10 BA= 0.20 CUFT= 3.22 VBAR= 16.10 DIST= 8.7;
DIAM= 11.10 BA= 0.67 CUFT= 13.02 VBAR= 19.43 DIST= 22.3;
DIAM= 10.30 BA= 0.57 CUFT= 10.89 VBAR= 19.10 DIST= 22.7;
DIAM= 12.10 BA= 0.79 CUFT= 16.03 VBAR= 20.29 DIST= 28.5;
DIAM= 16.40 BA= 1.46 CUFT= 33.86 VBAR= 23.19 DIST= 45.0;
DIAM= 6.90 BA= 0.25 CUFT= 4.27 VBAR= 17.08 DIST= 3.3;
DIAM= 6.40 BA= 0.22 CUFT= 3.59 VBAR= 16.31 DIST= 7.8;
DIAM= 6.10 BA= 0.20 CUFT= 3.22 VBAR= 16.10 DIST= 8.0;

SUM VBAR SQUARED = 83688.70

RUNNING TOTAL VBAR SQUARED = 376629.38

SAMPLE POINT COORDINATES ARE 1485.0 1100.0

DIAM=	13.60	BA=	1.00	CUFT=	21.31	VBAR=	21.31	DIST=	36.0;
DIAM=	13.70	BA=	1.02	CUFT=	21.69	VBAR=	21.26	DIST=	22.9;
DIAM=	17.00	BA=	1.57	CUFT=	37.04	VBAR=	23.59	DIST=	31.3;
DIAM=	16.20	BA=	1.43	CUFT=	32.84	VBAR=	22.96	DIST=	44.0;
DIAM=	13.90	BA=	1.05	CUFT=	22.48	VBAR=	21.40	DIST=	26.4;
DIAM=	15.70	BA=	1.34	CUFT=	30.37	VBAR=	22.66	DIST=	15.8;
DIAM=	5.60	BA=	0.17	CUFT=	2.65	VBAR=	15.58	DIST=	10.8;
DIAM=	10.60	BA=	0.61	CUFT=	11.66	VBAR=	19.11	DIST=	13.0;
DIAM=	9.80	BA=	0.52	CUFT=	9.67	VBAR=	18.59	DIST=	23.7;
DIAM=	17.40	BA=	1.65	CUFT=	39.27	VBAR=	23.80	DIST=	6.2;
DIAM=	13.10	BA=	0.93	CUFT=	19.44	VBAR=	20.90	DIST=	9.5;
DIAM=	10.00	BA=	0.54	CUFT=	10.15	VBAR=	18.79	DIST=	17.2;
DIAM=	22.00	BA=	2.63	CUFT=	71.26	VBAR=	27.09	DIST=	51.8;

SUM VBAR SQUARED = 76751.16

RUNNING TOTAL VBAR SQUARED = 453380.54

SAMPLE POINT COORDINATES ARE 1485.0 1407.5

DIAM=	11.10	BA=	0.67	CUFT=	13.02	VBAR=	19.43	DIST=	27.1;
DIAM=	18.60	BA=	1.88	CUFT=	46.45	VBAR=	24.70	DIST=	31.9;
DIAM=	18.70	BA=	1.90	CUFT=	47.09	VBAR=	24.78	DIST=	25.2;
DIAM=	18.00	BA=	1.76	CUFT=	42.76	VBAR=	24.29	DIST=	23.5;
DIAM=	16.00	BA=	1.39	CUFT=	31.83	VBAR=	22.89	DIST=	18.4;
DIAM=	12.80	BA=	0.89	CUFT=	18.37	VBAR=	20.64	DIST=	7.6;
DIAM=	17.00	BA=	1.57	CUFT=	37.04	VBAR=	23.59	DIST=	8.0;
DIAM=	9.00	BA=	0.44	CUFT=	7.91	VBAR=	17.97	DIST=	14.8;
DIAM=	10.50	BA=	0.60	CUFT=	11.40	VBAR=	19.00	DIST=	26.4;

SUM VBAR SQUARED = 38923.34

RUNNING TOTAL VBAR SQUARED = 492303.88

SAMPLE POINT COORDINATES ARE 1485.0 1715.0

DIAM=	5.30	BA=	0.15	CUFT=	2.34	VBAR=	15.60	DIST=	14.3;
DIAM=	8.70	BA=	0.41	CUFT=	7.30	VBAR=	17.80	DIST=	16.7;
DIAM=	16.90	BA=	1.55	CUFT=	36.50	VBAR=	23.54	DIST=	28.5;
DIAM=	20.80	BA=	2.35	CUFT=	61.72	VBAR=	26.26	DIST=	47.9;
DIAM=	7.00	BA=	0.26	CUFT=	4.41	VBAR=	16.96	DIST=	10.8;
DIAM=	10.90	BA=	0.64	CUFT=	12.46	VBAR=	19.46	DIST=	10.6;
DIAM=	13.50	BA=	0.99	CUFT=	20.93	VBAR=	21.14	DIST=	21.6;

SUM VBAR SQUARED = 19813.37

RUNNING TOTAL VBAR SQUARED = 512117.25

A= 29.39 B= 13.66;

TOTAL NUMBER OF TREES SAMPLED = 101

AVERAGE TREE COUNT = 11.22

SUM VBAR = 2079.33

AVERAGE VBAR= 20.58

BASAL AREA PER ACRE = 112.22

AVERAGE VOLUME PER ACRE = 2309.48

TOTAL VOLUME IN CUBIC FEET = 26720.68

CVTC= 29.39 STDETC= 3.29 STDEVBR= 2.81 CVBAR= 13.66;

STANDARD ERROR = 209.88

SAMPLING ERROR % = 9.08

COEFF. OF VARIATION % = 27.23

STANDARD ERROR OF MEAN TREE COUNT = 1.10

STANDARD ERROR OF MEAN VBAR = 0.28

SAMPLING ERROR OF TREE COUNT % = 9.80

SAMPLING ERROR OF VBAR % = 1.36

COMBINED SAMPLING ERROR TC & VBAR % = 9.89

OPTIMUM NUMBER OF TREE COUNT POINTS = 17.27
OPTIMUM NUMBER MEASUREMENT POINTS = 0.33

RATIO OF TREE COUNT POINTS TO MEASUREMENT POINTS IS 52 TO 1

PRACTICAL NUMBER OF TREE COUNT POINTS IS 11.00
PRACTICAL NUMBER OF MEASUREMENT POINTS IS 1.00

COST FOR COMBINED SAMPLING ERROR OF 10%

OPTIMUM COST = 25.47

PRACTICAL COST = 21.03

BAF= 15;

SAMPLE POINT COORDINATES ARE 1075.0 1100.0

DIAM=	17.20	BA=	1.61	CUFT=	38.14	VBAR=	23.68	DIST= 22.8;
DIAM=	5.20	BA=	0.14	CUFT=	2.25	VBAR=	16.07	DIST= 5.5;
DIAM=	14.50	BA=	1.14	CUFT=	24.94	VBAR=	21.87	DIST= 26.5;
DIAM=	22.00	BA=	2.63	CUFT=	71.26	VBAR=	27.09	DIST= 10.7;
DIAM=	7.90	BA=	0.34	CUFT=	5.83	VBAR=	17.14	DIST= 10.7;

SUM VBAR SQUARED = 11204.22

RUNNING TOTAL VBAR SQUARED = 11204.22

SAMPLE POINT COORDINATES ARE 1075.0 1407.5

DIAM= 14.70 BA= 1.17 CUFT= 25.80 VBAR= 22.05 DIST= 12.6;
DIAM= 9.70 BA= 0.51 CUFT= 9.44 VBAR= 18.50 DIST= 12.9;
DIAM= 15.30 BA= 1.27 CUFT= 28.49 VBAR= 22.43 DIST= 13.8;
DIAM= 11.00 BA= 0.65 CUFT= 12.74 VBAR= 19.60 DIST= 8.3;

SUM VBAR SQUARED = 6819.45

RUNNING TOTAL VBAR SQUARED = 18023.67

SAMPLE POINT COORDINATES ARE 1075.0 1715.0
DIAM= 8.70 BA= 0.41 CUFT= 7.30 VBAR= 17.80 DIST= 3.9;
DIAM= 16.20 BA= 1.43 CUFT= 32.84 VBAR= 22.96 DIST= 36.2;
DIAM= 13.70 BA= 1.02 CUFT= 21.69 VBAR= 21.26 DIST= 30.4;
DIAM= 11.90 BA= 0.77 CUFT= 15.39 VBAR= 19.98 DIST= 17.9;
DIAM= 10.90 BA= 0.64 CUFT= 12.46 VBAR= 19.46 DIST= 17.0;
DIAM= 10.70 BA= 0.62 CUFT= 11.92 VBAR= 19.22 DIST= 6.2;
DIAM= 20.90 BA= 2.38 CUFT= 62.48 VBAR= 26.25 DIST= 42.9;
DIAM= 16.70 BA= 1.52 CUFT= 35.43 VBAR= 23.30 DIST= 16.1;

SUM VBAR SQUARED = 28978.25

RUNNING TOTAL VBAR SQUARED = 47001.92

SAMPLE POINT COORDINATES ARE 1280.0 1100.0
DIAM= 9.70 BA= 0.51 CUFT= 9.44 VBAR= 18.50 DIST= 17.4;
DIAM= 9.80 BA= 0.52 CUFT= 9.67 VBAR= 18.59 DIST= 17.0;
DIAM= 12.20 BA= 0.81 CUFT= 16.35 VBAR= 20.18 DIST= 25.8;
DIAM= 12.90 BA= 0.90 CUFT= 18.73 VBAR= 20.81 DIST= 19.9;
DIAM= 14.80 BA= 1.19 CUFT= 26.24 VBAR= 22.05 DIST= 29.7;
DIAM= 10.90 BA= 0.64 CUFT= 12.46 VBAR= 19.46 DIST= 18.7;
DIAM= 5.60 BA= 0.17 CUFT= 2.65 VBAR= 15.58 DIST= 7.3;
DIAM= 8.00 BA= 0.34 CUFT= 6.00 VBAR= 17.64 DIST= 7.9;
DIAM= 12.30 BA= 0.82 CUFT= 16.68 VBAR= 20.34 DIST= 27.1;
DIAM= 11.00 BA= 0.65 CUFT= 12.74 VBAR= 19.60 DIST= 22.2;
DIAM= 8.60 BA= 0.40 CUFT= 7.11 VBAR= 17.77 DIST= 7.6;
DIAM= 12.00 BA= 0.78 CUFT= 15.71 VBAR= 20.14 DIST= 15.7;
DIAM= 18.20 BA= 1.80 CUFT= 43.97 VBAR= 24.42 DIST= 26.1;
DIAM= 10.40 BA= 0.58 CUFT= 11.14 VBAR= 19.20 DIST= 22.2;

SUM VBAR SQUARED = 75229.51

RUNNING TOTAL VBAR SQUARED = 122231.43

SAMPLE POINT COORDINATES ARE 1280.0 1407.5
DIAM= 13.00 BA= 0.92 CUFT= 19.08 VBAR= 20.73 DIST= 23.7;
DIAM= 9.60 BA= 0.50 CUFT= 9.21 VBAR= 18.42 DIST= 6.6;
DIAM= 9.20 BA= 0.46 CUFT= 8.33 VBAR= 18.10 DIST= 13.3;
DIAM= 15.20 BA= 1.26 CUFT= 28.03 VBAR= 22.24 DIST= 28.8;

SUM VBAR SQUARED = 6318.66

RUNNING TOTAL VBAR SQUARED = 128550.09

SAMPLE POINT COORDINATES ARE 1280.0 1715.0
DIAM= 11.30 BA= 0.69 CUFT= 13.59 VBAR= 19.69 DIST= 16.1;
DIAM= 5.50 BA= 0.16 CUFT= 2.55 VBAR= 15.93 DIST= 2.9;
DIAM= 11.30 BA= 0.69 CUFT= 13.59 VBAR= 19.69 DIST= 20.4;
DIAM= 19.20 BA= 2.01 CUFT= 50.34 VBAR= 25.04 DIST= 42.7;
DIAM= 6.10 BA= 0.20 CUFT= 3.22 VBAR= 16.10 DIST= 8.7;
DIAM= 11.10 BA= 0.67 CUFT= 13.02 VBAR= 19.43 DIST= 22.3;

DIAM= 10.30 BA= 0.57 CUFT= 10.89 VBAR= 19.10 DIST= 22.7;
DIAM= 6.90 BA= 0.25 CUFT= 4.27 VBAR= 17.08 DIST= 3.3;
DIAM= 6.40 BA= 0.22 CUFT= 3.59 VBAR= 16.31 DIST= 7.8;
DIAM= 6.10 BA= 0.20 CUFT= 3.22 VBAR= 16.10 DIST= 8.0;

SUM VBAR SQUARED = 34029.18

RUNNING TOTAL VBAR SQUARED = 162579.27

SAMPLE POINT COORDINATES ARE 1485.0 1100.0

DIAM= 13.70 BA= 1.02 CUFT= 21.69 VBAR= 21.26 DIST= 22.9;
DIAM= 17.00 BA= 1.57 CUFT= 37.04 VBAR= 23.59 DIST= 31.3;
DIAM= 13.90 BA= 1.05 CUFT= 22.48 VBAR= 21.40 DIST= 26.4;
DIAM= 15.70 BA= 1.34 CUFT= 30.37 VBAR= 22.66 DIST= 15.8;
DIAM= 5.60 BA= 0.17 CUFT= 2.65 VBAR= 15.58 DIST= 10.8;
DIAM= 10.60 BA= 0.61 CUFT= 11.66 VBAR= 19.11 DIST= 13.0;
DIAM= 17.40 BA= 1.65 CUFT= 39.27 VBAR= 23.80 DIST= 6.2;
DIAM= 13.10 BA= 0.93 CUFT= 19.44 VBAR= 20.90 DIST= 9.5;
DIAM= 10.00 BA= 0.54 CUFT= 10.15 VBAR= 18.79 DIST= 17.2;

SUM VBAR SQUARED = 35002.66

RUNNING TOTAL VBAR SQUARED = 197581.93

SAMPLE POINT COORDINATES ARE 1485.0 1407.5

DIAM= 18.60 BA= 1.88 CUFT= 46.45 VBAR= 24.70 DIST= 31.9;
DIAM= 18.70 BA= 1.90 CUFT= 47.09 VBAR= 24.78 DIST= 25.2;
DIAM= 18.00 BA= 1.76 CUFT= 42.76 VBAR= 24.29 DIST= 23.5;
DIAM= 16.00 BA= 1.39 CUFT= 31.83 VBAR= 22.89 DIST= 18.4;
DIAM= 12.80 BA= 0.89 CUFT= 18.37 VBAR= 20.64 DIST= 7.6;
DIAM= 17.00 BA= 1.57 CUFT= 37.04 VBAR= 23.59 DIST= 8.0;
DIAM= 9.00 BA= 0.44 CUFT= 7.91 VBAR= 17.97 DIST= 14.8;

SUM VBAR SQUARED = 25236.49

RUNNING TOTAL VBAR SQUARED = 222818.42

SAMPLE POINT COORDINATES ARE 1485.0 1715.0

DIAM= 8.70 BA= 0.41 CUFT= 7.30 VBAR= 17.80 DIST= 16.7;
DIAM= 16.90 BA= 1.55 CUFT= 36.50 VBAR= 23.54 DIST= 28.5;
DIAM= 7.00 BA= 0.26 CUFT= 4.41 VBAR= 16.96 DIST= 10.8;
DIAM= 10.90 BA= 0.64 CUFT= 12.46 VBAR= 19.46 DIST= 10.6;
DIAM= 13.50 BA= 0.99 CUFT= 20.93 VBAR= 21.14 DIST= 21.6;

SUM VBAR SQUARED = 9781.20

RUNNING TOTAL VBAR SQUARED = 232599.62
A= 44.99 B= 13.56;

TOTAL NUMBER OF TREES SAMPLED = 66

AVERAGE TREE COUNT = 7.33

SUM VBAR = 1341.75

AVERAGE VBAR= 20.32

BASAL AREA PER ACRE = 109.99

AVERAGE VOLUME PER ACRE = 2234.99

TOTAL VOLUME IN CUBIC FEET = 25858.83

CVTC= 44.99 STDETC= 3.29 STDEVBR= 2.76 CVVBAR= 13.56;

STANDARD ERROR = 319.01

SAMPLING ERROR % = 14.27

COEFF. OF VARIATION % = 42.80

STANDARD ERROR OF MEAN TREE COUNT = 1.10

STANDARD ERROR OF MEAN VBAR = 0.34

SAMPLING ERROR OF TREE COUNT % = 15.00

SAMPLING ERROR OF VBAR % = 1.67

COMBINED SAMPLING ERROR TC & VBAR % = 15.09

OPTIMUM NUMBER OF TREE COUNT POINTS = 40.48
OPTIMUM NUMBER MEASUREMENT POINTS = 0.50

RATIO OF TREE COUNT POINTS TO MEASUREMENT POINTS IS 81 TO 1

PRACTICAL NUMBER OF TREE COUNT POINTS IS 28.00
PRACTICAL NUMBER OF MEASUREMENT POINTS IS 1.00

COST FOR COMBINED SAMPLING ERROR OF 10%

OPTIMUM COST = 38.33

PRACTICAL COST = 30.86

BAF= 20;

SAMPLE POINT COORDINATES ARE 1075.0 1100.0

DIAM=	17.20	BA=	1.61	CUFT=	38.14	VBAR=	23.68	DIST=	22.8;
DIAM=	5.20	BA=	0.14	CUFT=	2.25	VBAR=	16.07	DIST=	5.5;
DIAM=	14.50	BA=	1.14	CUFT=	24.94	VBAR=	21.87	DIST=	26.5;
DIAM=	22.00	BA=	2.63	CUFT=	71.26	VBAR=	27.09	DIST=	10.7;
DIAM=	7.90	BA=	0.34	CUFT=	5.83	VBAR=	17.14	DIST=	10.7;

SUM VBAR SQUARED = 11204.22

RUNNING TOTAL VBAR SQUARED = 11204.22

SAMPLE POINT COORDINATES ARE 1075.0 1407.5

DIAM=	14.70	BA=	1.17	CUFT=	25.80	VBAR=	22.05	DIST=	12.6;
DIAM=	9.70	BA=	0.51	CUFT=	9.44	VBAR=	18.50	DIST=	12.9;

DIAM= 15.30 BA= 1.27 CUFT= 28.49 VBAR= 22.43 DIST= 13.8;
DIAM= 11.00 BA= 0.65 CUFT= 12.74 VBAR= 19.60 DIST= 8.3;

SUM VBAR SQUARED = 6819.45

RUNNING TOTAL VBAR SQUARED = 18023.67

SAMPLE POINT COORDINATES ARE 1075.0 1715.0

DIAM= 8.70 BA= 0.41 CUFT= 7.30 VBAR= 17.80 DIST= 3.9;
DIAM= 11.90 BA= 0.77 CUFT= 15.39 VBAR= 19.98 DIST= 17.9;
DIAM= 10.90 BA= 0.64 CUFT= 12.46 VBAR= 19.46 DIST= 17.0;
DIAM= 10.70 BA= 0.62 CUFT= 11.92 VBAR= 19.22 DIST= 6.2;
DIAM= 16.70 BA= 1.52 CUFT= 35.43 VBAR= 23.30 DIST= 16.1;

SUM VBAR SQUARED = 9952.05

RUNNING TOTAL VBAR SQUARED = 27975.72

SAMPLE POINT COORDINATES ARE 1280.0 1100.0

DIAM= 9.70 BA= 0.51 CUFT= 9.44 VBAR= 18.50 DIST= 17.4;
DIAM= 9.80 BA= 0.52 CUFT= 9.67 VBAR= 18.59 DIST= 17.0;
DIAM= 12.90 BA= 0.90 CUFT= 18.73 VBAR= 20.81 DIST= 19.9;
DIAM= 10.90 BA= 0.64 CUFT= 12.46 VBAR= 19.46 DIST= 18.7;
DIAM= 5.60 BA= 0.17 CUFT= 2.65 VBAR= 15.58 DIST= 7.3;
DIAM= 8.00 BA= 0.34 CUFT= 6.00 VBAR= 17.64 DIST= 7.9;
DIAM= 8.60 BA= 0.40 CUFT= 7.11 VBAR= 17.77 DIST= 7.6;
DIAM= 12.00 BA= 0.78 CUFT= 15.71 VBAR= 20.14 DIST= 15.7;
DIAM= 18.20 BA= 1.80 CUFT= 43.97 VBAR= 24.42 DIST= 26.1;

SUM VBAR SQUARED = 29897.86

RUNNING TOTAL VBAR SQUARED = 57873.58

SAMPLE POINT COORDINATES ARE 1280.0 1407.5

DIAM= 13.00 BA= 0.92 CUFT= 19.08 VBAR= 20.73 DIST= 23.7;
DIAM= 9.60 BA= 0.50 CUFT= 9.21 VBAR= 18.42 DIST= 6.6;
DIAM= 9.20 BA= 0.46 CUFT= 8.33 VBAR= 18.10 DIST= 13.3;
DIAM= 15.20 BA= 1.26 CUFT= 28.03 VBAR= 22.24 DIST= 28.8;

SUM VBAR SQUARED = 6318.66

RUNNING TOTAL VBAR SQUARED = 64192.24

SAMPLE POINT COORDINATES ARE 1280.0 1715.0

DIAM= 11.30 BA= 0.69 CUFT= 13.59 VBAR= 19.69 DIST= 16.1;
DIAM= 5.50 BA= 0.16 CUFT= 2.55 VBAR= 15.93 DIST= 2.9;
DIAM= 11.30 BA= 0.69 CUFT= 13.59 VBAR= 19.69 DIST= 20.4;
DIAM= 6.10 BA= 0.20 CUFT= 3.22 VBAR= 16.10 DIST= 8.7;
DIAM= 6.90 BA= 0.25 CUFT= 4.27 VBAR= 17.08 DIST= 3.3;
DIAM= 6.40 BA= 0.22 CUFT= 3.59 VBAR= 16.31 DIST= 7.8;
DIAM= 6.10 BA= 0.20 CUFT= 3.22 VBAR= 16.10 DIST= 8.0;

SUM VBAR SQUARED = 14616.81

RUNNING TOTAL VBAR SQUARED = 78809.05

SAMPLE POINT COORDINATES ARE 1485.0 1100.0

DIAM= 13.70 BA= 1.02 CUFT= 21.69 VBAR= 21.26 DIST= 22.9;
DIAM= 17.00 BA= 1.57 CUFT= 37.04 VBAR= 23.59 DIST= 31.3;
DIAM= 13.90 BA= 1.05 CUFT= 22.48 VBAR= 21.40 DIST= 26.4;

DIAM= 15.70 BA= 1.34 CUFT= 30.37 VBAR= 22.66 DIST= 15.8;
DIAM= 5.60 BA= 0.17 CUFT= 2.65 VBAR= 15.58 DIST= 10.8;
DIAM= 10.60 BA= 0.61 CUFT= 11.66 VBAR= 19.11 DIST= 13.0;
DIAM= 17.40 BA= 1.65 CUFT= 39.27 VBAR= 23.80 DIST= 6.2;
DIAM= 13.10 BA= 0.93 CUFT= 19.44 VBAR= 20.90 DIST= 9.5;
DIAM= 10.00 BA= 0.54 CUFT= 10.15 VBAR= 18.79 DIST= 17.2;

SUM VBAR SQUARED = 35002.66

RUNNING TOTAL VBAR SQUARED = 113811.71

SAMPLE POINT COORDINATES ARE 1485.0 1407.5
DIAM= 18.60 BA= 1.88 CUFT= 46.45 VBAR= 24.70 DIST= 31.9;
DIAM= 18.70 BA= 1.90 CUFT= 47.09 VBAR= 24.78 DIST= 25.2;
DIAM= 18.00 BA= 1.76 CUFT= 42.76 VBAR= 24.29 DIST= 23.5;
DIAM= 16.00 BA= 1.39 CUFT= 31.83 VBAR= 22.89 DIST= 18.4;
DIAM= 12.80 BA= 0.89 CUFT= 18.37 VBAR= 20.64 DIST= 7.6;
DIAM= 17.00 BA= 1.57 CUFT= 37.04 VBAR= 23.59 DIST= 8.0;
DIAM= 9.00 BA= 0.44 CUFT= 7.91 VBAR= 17.97 DIST= 14.8;

SUM VBAR SQUARED = 25236.49

RUNNING TOTAL VBAR SQUARED = 139048.20

SAMPLE POINT COORDINATES ARE 1485.0 1715.0
DIAM= 8.70 BA= 0.41 CUFT= 7.30 VBAR= 17.80 DIST= 16.7;
DIAM= 16.90 BA= 1.55 CUFT= 36.50 VBAR= 23.54 DIST= 28.5;
DIAM= 7.00 BA= 0.26 CUFT= 4.41 VBAR= 16.96 DIST= 10.8;
DIAM= 10.90 BA= 0.64 CUFT= 12.46 VBAR= 19.46 DIST= 10.6;
DIAM= 13.50 BA= 0.99 CUFT= 20.93 VBAR= 21.14 DIST= 21.6;

SUM VBAR SQUARED = 9781.20

RUNNING TOTAL VBAR SQUARED = 148829.40
A= 31.88 B= 13.94;

TOTAL NUMBER OF TREES SAMPLED = 55

AVERAGE TREE COUNT = 6.11

SUM VBAR = 1106.34

AVERAGE VBAR= 20.11

BASAL AREA PER ACRE = 122.22

AVERAGE VOLUME PER ACRE = 2457.84

TOTAL VOLUME IN CUBIC FEET = 28437.20

CVIC= 31.88 STDEVIC= 1.94 STDEVBR= 2.81 CVBAR= 13.94;

STANDARD ERROR = 266.98

SAMPLING ERROR % = 10.86

COEFF. OF VARIATION % = 32.57

STANDARD ERROR OF MEAN TREE COUNT = 0.65

STANDARD ERROR OF MEAN VBAR = 0.38

SAMPLING ERROR OF TREE COUNT % = 10.63

SAMPLING ERROR OF VBAR % = 1.88

COMBINED SAMPLING ERROR TC & VBAR % = 10.79

OPTIMUM NUMBER OF TREE COUNT POINTS = 20.32
OPTIMUM NUMBER MEASUREMENT POINTS = 0.63

RATIO OF TREE COUNT POINTS TO MEASUREMENT POINTS IS 32 TO 1

PRACTICAL NUMBER OF TREE COUNT POINTS IS 15.00
PRACTICAL NUMBER OF MEASUREMENT POINTS IS 1.00

COST FOR COMBINED SAMPLING ERROR OF 10%

OPTIMUM COST = 23.13

PRACTICAL COST = 19.77

BAF= 30;

SAMPLE POINT COORDINATES ARE 1075.0 1100.0

DIAM=	17.20	BA=	1.61	CUFT=	38.14	VBAR=	23.68	DIST=	22.8;
DIAM=	5.20	BA=	0.14	CUFT=	2.25	VBAR=	16.07	DIST=	5.5;
DIAM=	22.00	BA=	2.63	CUFT=	71.26	VBAR=	27.09	DIST=	10.7;
DIAM=	7.90	BA=	0.34	CUFT=	5.83	VBAR=	17.14	DIST=	10.7;

SUM VBAR SQUARED = 7052.64

RUNNING TOTAL VBAR SQUARED = 7052.64

SAMPLE POINT COORDINATES ARE 1075.0 1407.5

DIAM=	14.70	BA=	1.17	CUFT=	25.80	VBAR=	22.05	DIST=	12.6;
DIAM=	9.70	BA=	0.51	CUFT=	9.44	VBAR=	18.50	DIST=	12.9;
DIAM=	15.30	BA=	1.27	CUFT=	28.49	VBAR=	22.43	DIST=	13.8;
DIAM=	11.00	BA=	0.65	CUFT=	12.74	VBAR=	19.60	DIST=	8.3;

SUM VBAR SQUARED = 6819.45

RUNNING TOTAL VBAR SQUARED = 13872.09

SAMPLE POINT COORDINATES ARE 1075.0 1715.0

DIAM=	8.70	BA=	0.41	CUFT=	7.30	VBAR=	17.80	DIST=	3.9;
DIAM=	11.90	BA=	0.77	CUFT=	15.39	VBAR=	19.98	DIST=	17.9;
DIAM=	10.90	BA=	0.64	CUFT=	12.46	VBAR=	19.46	DIST=	17.0;
DIAM=	10.70	BA=	0.62	CUFT=	11.92	VBAR=	19.22	DIST=	6.2;
DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST=	16.1;

SUM VBAR SQUARED = 9952.05

RUNNING TOTAL VBAR SQUARED = 23824.14

SAMPLE POINT COORDINATES ARE 1280.0 1100.0

DIAM=	12.90	BA=	0.90	CUFT=	18.73	VBAR=	20.81	DIST=	19.9;
DIAM=	5.60	BA=	0.17	CUFT=	2.65	VBAR=	15.58	DIST=	7.3;
DIAM=	8.00	BA=	0.34	CUFT=	6.00	VBAR=	17.64	DIST=	7.9;
DIAM=	8.60	BA=	0.40	CUFT=	7.11	VBAR=	17.77	DIST=	7.6;
DIAM=	12.00	BA=	0.78	CUFT=	15.71	VBAR=	20.14	DIST=	15.7;
DIAM=	18.20	BA=	1.80	CUFT=	43.97	VBAR=	24.42	DIST=	26.1;

SUM VBAR SQUARED = 13539.64

RUNNING TOTAL VBAR SQUARED = 37363.78

SAMPLE POINT COORDINATES ARE 1280.0 1407.5

DIAM=	9.60	BA=	0.50	CUFT=	9.21	VBAR=	18.42	DIST=	6.6;
DIAM=	9.20	BA=	0.46	CUFT=	8.33	VBAR=	18.10	DIST=	13.3;

SUM VBAR SQUARED = 1333.71

RUNNING TOTAL VBAR SQUARED = 38697.49

SAMPLE POINT COORDINATES ARE 1280.0 1715.0

DIAM=	11.30	BA=	0.69	CUFT=	13.59	VBAR=	19.69	DIST=	16.1;
DIAM=	5.50	BA=	0.16	CUFT=	2.55	VBAR=	15.93	DIST=	2.9;
DIAM=	6.10	BA=	0.20	CUFT=	3.22	VBAR=	16.10	DIST=	8.7;
DIAM=	6.90	BA=	0.25	CUFT=	4.27	VBAR=	17.08	DIST=	3.3;
DIAM=	6.40	BA=	0.22	CUFT=	3.59	VBAR=	16.31	DIST=	7.8;
DIAM=	6.10	BA=	0.20	CUFT=	3.22	VBAR=	16.10	DIST=	8.0;

SUM VBAR SQUARED = 10243.46

RUNNING TOTAL VBAR SQUARED = 48940.95

SAMPLE POINT COORDINATES ARE 1485.0 1100.0

DIAM=	15.70	BA=	1.34	CUFT=	30.37	VBAR=	22.66	DIST=	15.8;
DIAM=	10.60	BA=	0.61	CUFT=	11.66	VBAR=	19.11	DIST=	13.0;
DIAM=	17.40	BA=	1.65	CUFT=	39.27	VBAR=	23.80	DIST=	6.2;
DIAM=	13.10	BA=	0.93	CUFT=	19.44	VBAR=	20.90	DIST=	9.5;

SUM VBAR SQUARED = 7477.06

RUNNING TOTAL VBAR SQUARED = 56418.01

SAMPLE POINT COORDINATES ARE 1485.0 1407.5

DIAM=	18.70	BA=	1.90	CUFT=	47.09	VBAR=	24.78	DIST=	25.2;
DIAM=	18.00	BA=	1.76	CUFT=	42.76	VBAR=	24.29	DIST=	23.5;
DIAM=	16.00	BA=	1.39	CUFT=	31.83	VBAR=	22.89	DIST=	18.4;
DIAM=	12.80	BA=	0.89	CUFT=	18.37	VBAR=	20.64	DIST=	7.6;
DIAM=	17.00	BA=	1.57	CUFT=	37.04	VBAR=	23.59	DIST=	8.0;

SUM VBAR SQUARED = 13500.11

RUNNING TOTAL VBAR SQUARED = 69918.12

SAMPLE POINT COORDINATES ARE 1485.0 1715.0

DIAM=	7.00	BA=	0.26	CUFT=	4.41	VBAR=	16.96	DIST=	10.8;
DIAM=	10.90	BA=	0.64	CUFT=	12.46	VBAR=	19.46	DIST=	10.6;

SUM VBAR SQUARED = 1326.41

RUNNING TOTAL VBAR SQUARED = 71244.53
A= 34.79 B= 15.10;

TOTAL NUMBER OF TREES SAMPLED = 38
AVERAGE TREE COUNT = 4.22
SUM VBAR = 759.49
AVERAGE VBAR= 19.98
BASAL AREA PER ACRE = 126.66
AVERAGE VOLUME PER ACRE = 2530.66
TOTAL VOLUME IN CUBIC FEET = 29279.73
CVTC= 34.79 STDETC= 1.46 STDEVBR= 3.02 CVBAR= 15.10;
STANDARD ERROR = 299.01
SAMPLING ERROR % = 11.81
COEFF. OF VARIATION % = 35.42
STANDARD ERROR OF MEAN TREE COUNT = 0.49
STANDARD ERROR OF MEAN VBAR = 0.49
SAMPLING ERROR OF TREE COUNT % = 11.60
SAMPLING ERROR OF VBAR % = 2.45
COMBINED SAMPLING ERROR TC & VBAR % = 11.85
OPTIMUM NUMBER OF TREE COUNT POINTS = 24.20
OPTIMUM NUMBER MEASUREMENT POINTS = 1.08
RATIO OF TREE COUNT POINTS TO MEASUREMENT POINTS IS 22 TO 1
PRACTICAL NUMBER OF TREE COUNT POINTS IS 17.00
PRACTICAL NUMBER OF MEASUREMENT POINTS IS 2.00
COST FOR COMBINED SAMPLING ERROR OF 10%
OPTIMUM COST = 23.57
PRACTICAL COST = 20.08

BAF= 40;

SAMPLE POINT COORDINATES ARE 1075.0 1100.0

DIAM=	17.20	BA=	1.61	CUFT=	38.14	VBAR=	23.68	DIST=	22.8;
DIAM=	5.20	BA=	0.14	CUFT=	2.25	VBAR=	16.07	DIST=	5.5;
DIAM=	22.00	BA=	2.63	CUFT=	71.26	VBAR=	27.09	DIST=	10.7;
DIAM=	7.90	BA=	0.34	CUFT=	5.83	VBAR=	17.14	DIST=	10.7;

SUM VBAR SQUARED = 7052.64

RUNNING TOTAL VBAR SQUARED = 7052.64

SAMPLE POINT COORDINATES ARE 1075.0 1407.5

DIAM=	14.70	BA=	1.17	CUFT=	25.80	VBAR=	22.05	DIST=	12.6;
DIAM=	9.70	BA=	0.51	CUFT=	9.44	VBAR=	18.50	DIST=	12.9;
DIAM=	15.30	BA=	1.27	CUFT=	28.49	VBAR=	22.43	DIST=	13.8;
DIAM=	11.00	BA=	0.65	CUFT=	12.74	VBAR=	19.60	DIST=	8.3;

SUM VBAR SQUARED = 6819.45

RUNNING TOTAL VBAR SQUARED = 13872.09

SAMPLE POINT COORDINATES ARE 1075.0 1715.0

DIAM=	8.70	BA=	0.41	CUFT=	7.30	VBAR=	17.80	DIST=	3.9;
DIAM=	10.70	BA=	0.62	CUFT=	11.92	VBAR=	19.22	DIST=	6.2;
DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST=	16.1;

SUM VBAR SQUARED = 3638.50

RUNNING TOTAL VBAR SQUARED = 17510.59

SAMPLE POINT COORDINATES ARE 1280.0 1100.0

DIAM=	5.60	BA=	0.17	CUFT=	2.65	VBAR=	15.58	DIST=	7.3;
DIAM=	8.00	BA=	0.34	CUFT=	6.00	VBAR=	17.64	DIST=	7.9;
DIAM=	8.60	BA=	0.40	CUFT=	7.11	VBAR=	17.77	DIST=	7.6;
DIAM=	12.00	BA=	0.78	CUFT=	15.71	VBAR=	20.14	DIST=	15.7;

SUM VBAR SQUARED = 5059.47

RUNNING TOTAL VBAR SQUARED = 22570.06

SAMPLE POINT COORDINATES ARE 1280.0 1407.5

DIAM=	9.60	BA=	0.50	CUFT=	9.21	VBAR=	18.42	DIST=	6.6;

SUM VBAR SQUARED = 339.29

RUNNING TOTAL VBAR SQUARED = 22909.35

SAMPLE POINT COORDINATES ARE 1280.0 1715.0

DIAM=	5.50	BA=	0.16	CUFT=	2.55	VBAR=	15.93	DIST=	2.9;
DIAM=	6.90	BA=	0.25	CUFT=	4.27	VBAR=	17.08	DIST=	3.3;
DIAM=	6.40	BA=	0.22	CUFT=	3.59	VBAR=	16.31	DIST=	7.8;
DIAM=	6.10	BA=	0.20	CUFT=	3.22	VBAR=	16.10	DIST=	8.0;

SUM VBAR SQUARED = 4279.77

RUNNING TOTAL VBAR SQUARED = 27189.12

SAMPLE POINT COORDINATES ARE 1485.0 1100.0

DIAM=	15.70	BA=	1.34	CUFT=	30.37	VBAR=	22.66	DIST=	15.8;
DIAM=	10.60	BA=	0.61	CUFT=	11.66	VBAR=	19.11	DIST=	13.0;
DIAM=	17.40	BA=	1.65	CUFT=	39.27	VBAR=	23.80	DIST=	6.2;

DIAM= 13.10 BA= 0.93 CUFT= 19.44 VBAR= 20.90 DIST= 9.5;

SUM VBAR SQUARED = 7477.06

RUNNING TOTAL VBAR SQUARED = 34666.18

SAMPLE POINT COORDINATES ARE 1485.0 1407.5

DIAM=	18.70	BA=	1.90	CUFT=	47.09	VBAR=	24.78	DIST= 25.2;
DIAM=	18.00	BA=	1.76	CUFT=	42.76	VBAR=	24.29	DIST= 23.5;
DIAM=	16.00	BA=	1.39	CUFT=	31.83	VBAR=	22.89	DIST= 18.4;
DIAM=	12.80	BA=	0.89	CUFT=	18.37	VBAR=	20.64	DIST= 7.6;
DIAM=	17.00	BA=	1.57	CUFT=	37.04	VBAR=	23.59	DIST= 8.0;

SUM VBAR SQUARED = 13500.11

RUNNING TOTAL VBAR SQUARED = 48166.29

SAMPLE POINT COORDINATES ARE 1485.0 1715.0

DIAM= 10.90 BA= 0.64 CUFT= 12.46 VBAR= 19.46 DIST= 10.6;

SUM VBAR SQUARED = 378.69

RUNNING TOTAL VBAR SQUARED = 48544.98

A= 42.29 B= 15.50;

TOTAL NUMBER OF TREES SAMPLED = 30

AVERAGE TREE COUNT = 3.33

SUM VBAR = 603.97

AVERAGE VBAR= 20.13

BASAL AREA PER ACRE = 133.33

AVERAGE VOLUME PER ACRE = 2683.93

TOTAL VOLUME IN CUBIC FEET = 31053.07

CVTC= 42.29 STDETC= 1.40 STDEVBR= 3.12 CVVBAR= 15.50;

STANDARD ERROR = 422.00

SAMPLING ERROR % = 15.72

COEFF. OF VARIATION % = 47.15

STANDARD ERROR OF MEAN TREE COUNT = 0.47

STANDARD ERROR OF MEAN VBAR = 0.57

SAMPLING ERROR OF TREE COUNT % = 14.10

SAMPLING ERROR OF VBAR % = 2.83

COMBINED SAMPLING ERROR TC & VBAR % = 14.38

OPTIMUM NUMBER OF TREE COUNT POINTS = 35.76

OPTIMUM NUMBER MEASUREMENT POINTS = 1.44

RATIO OF TREE COUNT POINTS TO MEASUREMENT POINTS IS 25 TO 1

PRACTICAL NUMBER OF TREE COUNT POINTS IS 29.00
PRACTICAL NUMBER OF MEASUREMENT POINTS IS 2.00

COST FOR COMBINED SAMPLING ERROR OF 10%

OPTIMUM COST = 28.22

PRACTICAL COST = 25.37

OPTIONS USED

AGGREGATE	NOCOUNT	CHARSET(60,EBCDIC)
ATTRIBUTES	NODECK	NOCOMPILE(S)
GOSTMT	NOESD	FLAG(I)
INSOURCE	NOFLOW	LINECOUNT(62)
LMESSAGE	NOGONUMBER	MARGINI('|')
NEST	NOIMPRECISE	MARGINS(2,72,1)
OBJECT	NOINCLUDE	SEQUENCE(73,80)
OFFSET	NOLIST	SIZE(247504)
OPTIONS	NOMACRO	NOSYNTAX(S)
SOURCE	NOMAP	
STMT	NOMDECK	
STORAGE	NONUMBER	
XREF	NOOPTIMIZE	
	NOTERMINAL	

12 Point Cruise

SOURCE LISTING

```
STMT LEV NT

    1       0   TREES:PROC OPTIONS(MAIN);
                /*                                                          */
                /*      THIS PROGRAM IS A SAMPLING SIMULATION OF VARIABLE PLOT */
                /* CRUISING. THE DATA CONSIST OF AN II.57 ACRE UNEVEN AGED STAND OF */
                /* HARDWOODS. FOR EACH OF THESE 1615 TREES, DATA ARE GIVEN ON TREE */
                /* SPECIES, LOCATION IN X AND Y COORDINATES (IN FEET), DIAMETER (IN */
                /* INCHES), BASAL AREA (IN SQUARE FEET), VOLUME (IN CUBIC FEET), */
                /* AND HEIGHT (IN FEET).                                    */
                /*      TO CHANGE THE NUMBER OF SAMPLING POINTS, ONE MUST CHANGE */
                /* THREE CARDS. THEY ARE CARDS IN STATEMENTS 30, 51, AND 52. NPLOTS */
                /* IN STATEMENT 30 REPRESENTS THE NUMBER OF SAMPLING POINTS.  */
                /* STATEMENTS 51 AND 52 SPECIFY WHERE THESE POINTS ARE. DUE TO THE */
                /* SETUP OF THE COORDINATE SYSTEM, X MUST LIE BETWEEN 1075' AND */
                /* 1485' AND Y MUST LIE BETWEEN 1100' AND 1715'.            */
                /*                                                          */
    2   1   0   DCL (XCO,YCO,I,J) FIXED(8,1);
    3   1   0   DCL 1 TREE,
                      2 DIAM FIXED(4,1),
                      2 BA FIXED(4,2),
                      2 CUFT FIXED(5,2);
    4   1   0   DCL(K,H,M,BAF,NPLOTS,NUM) FIXED(5,0);
    5   1   0   DCL (DIST) FIXED(8,1);
    6   1   0    DCL ARXCO(1615) FIXED(8,1);
    7   1   0    DCL ARYCO(1615) FIXED(8,1);
    8   1   0    DCL ARDIAM(1615) FIXED(5,1);
    9   1   0    DCL ARBA(1615) FIXED(4,2);
   10   1   0    DCL ARCUFT(1615) FIXED(4,2);
   11   1   0   DCL(DIAM,BA,CUFT,VBAR,ROUNVBAR) FIXED(5,2);
   12   1   0   DCL COUNT FIXED(5,0) INIT(0);
   13   1   0   DCL SMVBAR FIXED(10,2) INIT(0);
   14   1   0   DCL(AVVBAR,BAPA,AVVOL,TOTVOL) FIXED(10,2);
   15   1   0   DCL SPVBAR FIXED(8,2);
   16   1   0   DCL SVBARSQ FIXED(10,2);
   17   1   0   DCL SEP FIXED(5,2);
   18   1   0   DCL SPVBARQ FIXED(8,2);
   19   1   0   DCL SE FIXED(6,2);
   20   1   0   DCL C FIXED(5,2);
   21   1   0   DCL(VBARSQ,COUNTQ,SETCM,SETCP,SEVBARM,SEVBARP,SETCVB,A,B,ARATIO)
                    FIXED(8,2);
   22   1   0   DCL BRATIO FIXED(6,0);
   23   1   0   DCL (SCOUNTQ,SUMVBSQ) FIXED(10,2);
   24   1   0   DCL (CW,CTC,CM,WALK,NTC,NVBAR,COST) FLOAT;
   25   1   0   DCL(CVTC,STDETC,STDEVBR,CVVBAR) FIXED(8,2);
   26   1   0   DCL(TOTDIST,AVDIST,BVCOUNT) FIXED(10,2);
   27   1   0   DCL(ASETC,PNTC) FIXED(8,2);
   28   1   0   CW=.5;
   29   1   0   CTC=.05;
   30   1   0   NPLOTS=12;
   31   1   0   AAA:DO H=1 TO 1615;
   32   1   1       GET EDIT(XCO)(COL(14),F(6,1));
   33   1   1       ARXCO(H)=XCO;
   34   1   1       GET EDIT(YCO)(COL(24),F(6,1));
   35   1   1       ARYCO(H)=YCO;
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STMT LEV NT

  36   1  1      GET EDIT (TREE.DIAM)(COL(33),F(4,1));
  37   1  1      ARDIAM(H)=TREE.DIAM;
  38   1  1      GET EDIT (TREE.BA)(COL(40),F(4,2));
  39   1  1      ARBA(H)=TREE.BA;
  40   1  1      GET EDIT (TREE.CUFT)(COL(51),F(5,2));
  41   1  1      ARCUFT(H)=TREE.CUFT;
  42   1  1      END AAA;
  43   1  0  AB:DO BAF=5,10,15,20,30,40;
  44   1  1      PUT SKIP(10) DATA(BAF);
  45   1  1      COUNT=0;
  46   1  1      SMVBAR=0;
  47   1  1      SVBARSQ=0;
  48   1  1      SCOUNTQ=0;
  49   1  1      SUMVBSQ=0;
  50   1  1      TOTDIST=0;
  51   1  1  AA:DO I=1075,1280,1485;
  52   1  2   BB:DO J=1100,1305,1510,1715;
  53   1  3   PUT SKIP(2) LIST('SAMPLE POINT COORDINATES ARE',I,J);
  54   1  3    SPVBAR=0;
  55   1  3    NUM=0;
  56   1  3    CC:DO K=1 TO 1615;
  57   1  4       XCO=ARXCO(K);
  58   1  4       YCO=ARYCO(K);
  59   1  4   IF (((XCO<(I+100)) & (XCO>(I-100))) & ((YCO<(J+100)) & (YCO>(J-100))))
               THEN DD:DO;
  60   1  5       DIST=((((XCO-I)**2)+((YCO-J)**2))**.5);
  61   1  5       DIAM=ARDIAM(K);
  62   1  5       BA=ARBA(K);
  63   1  5       CUFT=ARCUFT(K);
  64   1  5       IF BAF<=((43560)/(1+(576*((DIST/DIAM)**2)))) THEN EE:DO;
  65   1  6       VBAR=CUFT/BA;
  66   1  6       PUT SKIP DATA(DIAM,BA,CUFT,VBAR,DIST);
  67   1  6       COUNT=COUNT+1;
  68   1  6       SMVBAR=SMVBAR+VBAR;
  69   1  6       SPVBAR=SPVBAR+VBAR;
  70   1  6       NUM=NUM+1;
  71   1  6       VBARSQ=VBAR**2;
  72   1  6       SUMVBSQ=SUMVBSQ+VBARSQ;
  73   1  6       TOTDIST=TOTDIST+DIST;
  74   1  6       END EE;
  75   1  5     END DD;
  76   1  4    END CC;
  77   1  3    SPVBARQ=SPVBAR**2;
  78   1  3     PUT SKIP(2) LIST('SUM VBAR SQUARED =',SPVBARQ);
  79   1  3    SVBARSQ=SVBARSQ+SPVBARQ;
  80   1  3    PUT SKIP(2) LIST('RUNNING TOTAL VBAR SQUARED =',SVBARSQ);
  81   1  3    COUNTQ=NUM**2;
  82   1  3    SCOUNTQ=SCOUNTQ+COUNTQ;
  83   1  3   END BB;
  84   1  2  END AA;
  85   1  1  AVDIST=TOTDIST/COUNT;
  86   1  1  AVVBAR=SMVBAR/COUNT;
  87   1  1  AVCOUNT=COUNT/NPLOTS;
  88   1  1  BAPA=BAF*AVCOUNT;
  89   1  1  AVVOL=BAPA*AVVBAR;
  90   1  1  TOTVOL=11.57*AVVOL;
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STMT LEV NT

  91    1   1  SE=(((SVBARSQ-((SMVBAR**2)/NPLOTS))/(NPLOTS*(NPLOTS-1)))**.5)*BAF;
  92    1   1  SEP=(SE/AVVOL)*100;
  93    1   1  C=SEP*(NPLOTS**.5);
  94    1   1  SETCM=(((SCOUNTQ-((COUNT**2)/NPLOTS))/(NPLOTS*(NPLOTS-1)))**.5);
  95    1   1  SETCP=((SETCM/AVCOUNT)*100);
  96    1   1  SEVBARM=(((SUMVBSQ-((SMVBAR**2)/COUNT))/(COUNT*(COUNT-1)))**.5);
  97    1   1  SEVBARP=((SEVBARM/AVVBAR)*100);
  98    1   1  CVTC=(SETCP*((NPLOTS)**.5));
  99    1   1  STDETC=(SETCM*((NPLOTS)**.5));
 100    1   1  STDEVBR=(SEVBARM*((COUNT)**.5));
 101    1   1  CVVBAR=(SEVBARP*((COUNT)**.5));
 102    1   1  SETCVB=(((SETCP**2)+(SEVBARP**2))**.5);
 103    1   1    A=((NPLOTS**.5)*SETCP);
 104    1   1    B=((COUNT**.5)*SEVBARP);
 105    1   1    PUT SKIP DATA(A,B);
 106    1   1    NTC=((A**2)/50);
 107    1   1    NVBAR=(((B**2)/50)/AVCOUNT);
 108    1   1    ARATIO=(NTC/NVBAR);
 109    1   1    BRATIO=ROUND(ARATIO,0);
 110    1   1  PUT SKIP(3) LIST('TOTAL NUMBER OF TREES SAMPLED =',COUNT);
 111    1   1  PUT SKIP(2) LIST('AVERAGE TREE COUNT =',(FIXED(AVCOUNT,5,2)));
 112    1   1  PUT SKIP(2) LIST('SUM VBAR =',SMVBAR);
 113    1   1  PUT SKIP(2) LIST('AVERAGE VBAR=',AVVBAR);
 114    1   1  PUT SKIP(2) LIST('BASAL AREA PER ACRE =',BAPA);
 115    1   1  PUT SKIP(2) LIST('AVERAGE VOLUME PER ACRE =',AVVOL);
 116    1   1  PUT SKIP(2) LIST('TOTAL VOLUME IN CUBIC FEET =',TOTVOL);
 117    1   1  PUT SKIP(2) DATA(CVTC,STDETC,STDEVBR,CVVBAR);
 118    1   1  PUT SKIP(2) LIST('STANDARD ERROR =',SE);
 119    1   1  PUT SKIP(2) LIST('SAMPLING ERROR % =',SEP);
 120    1   1  PUT SKIP(2) LIST('COEFF. OF VARIATION % =',C);
 121    1   1  PUT SKIP(2) LIST('STANDARD ERROR OF MEAN TREE COUNT =',SETCM);
 122    1   1  PUT SKIP(2) LIST('STANDARD ERROR OF MEAN VBAR =',SEVBARM);
 123    1   1  PUT SKIP(2) LIST('SAMPLING ERROR OF TREE COUNT % =',SETCP);
 124    1   1  PUT SKIP(2) LIST('SAMPLING ERROR OF VBAR % =',SEVBARP);
 125    1   1  PUT SKIP(2) LIST('COMBINED SAMPLING ERROR TC & VBAR % =',SETCVB);
 126    1   1  PUT SKIP(2) LIST('OPTIMUM NUMBER OF TREE COUNT POINTS =',
                    (FIXED(NTC,5,2)));
 127    1   1  PUT SKIP LIST('OPTIMUM NUMBER MEASUREMENT POINTS =',
                   (FIXED(NVBAR,5,2)));
 128    1   1  PUT SKIP(2) LIST('RATIO OF TREE COUNT POINTS TO MEASUREMENT POINTS IS',
                BRATIO,'TO 1');
 129    1   1  ROUNVBAR=NVBAR+.5;
 130    1   1  ROUNVBAR=ROUND(ROUNVBAR,0);
 131    1   1  BVCOUNT=AVCOUNT*ROUNVBAR;
 132    1   1  ASETC=((100-((CVVBAR**2)/BVCOUNT))**.5);
 133    1   1  PNTC=(((CVTC/ASETC)**2)+.5);
 134    1   1  PNTC=ROUND(PNTC,0);
 135    1   1  PUT SKIP(2) LIST('PRACTICAL NUMBER OF TREE COUNT POINTS IS',PNTC);
 136    1   1  PUT SKIP LIST('PRACTICAL NUMBER OF MEASUREMENT POINTS IS  ',ROUNVBAR);
 137    1   1  PUT SKIP(2) LIST('COST FOR COMBINED SAMPLING ERROR OF 10%');
 138    1   1  GG:DO M=1,2;
 139    1   2    IF M=2 THEN DO;
 140    1   3    NTC=PNTC;
 141    1   3    NVBAR=ROUNVBAR;
 142    1   3    END;
 143    1   2    WALK=(((11.57*43560)/NTC)**.5);
```

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STMT LEV NT

 144   1  2  |  CM=(.16+((AVDIST/100)*.5));
 145   1  2  |COST=((NTC*(CW*(WALK/100)))+(CTC*(AVCOUNT*NTC))+(CM*(AVCOUNT*NVBAR)));
 146   1  2  |  IF M=1 THEN DO;
 147   1  3  |PUT SKIP(2) LIST('OPTIMUM COST =',(FIXED(COST,5,2)));
 148   1  3  |END;
 149   1  2  |IF M=2 THEN DO;
 150   1  3  |PUT SKIP(2) LIST('PRACTICAL COST =',(FIXED(COST,5,2)));
 151   1  3  |END;
 152   1  2  |END GG;
 153   1  1  |END AB;
 154   1  0  |END TREES;
```

ATTRIBUTE AND CROSS-REFERENCE TABLE

DCL NO.	IDENTIFIER	ATTRIBUTES AND REFERENCES
21	A	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 103,105,106
51	AA	/* STATEMENT LABEL CONSTANT */
31	AAA	/* STATEMENT LABEL CONSTANT */
43	AB	/* STATEMENT LABEL CONSTANT */
21	ARATIO	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 108,109
9	ARBA	(1615) AUTOMATIC ALIGNED DECIMAL FIXED (4,2) 39,62
10	ARCUFT	(1615) AUTOMATIC ALIGNED DECIMAL FIXED (4,2) 41,63
8	ARDIAM	(1615) AUTOMATIC ALIGNED DECIMAL FIXED (5,1) 37,61
6	ARXCO	(1615) AUTOMATIC ALIGNED DECIMAL FIXED (8,1) 33,57
7	ARYCO	(1615) AUTOMATIC ALIGNED DECIMAL FIXED (8,1) 35,58
27	ASETC	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 132,133
********	AVCOUNT	AUTOMATIC ALIGNED DECIMAL /* SINGLE */ FLOAT (6) 87,88,95,107,111,131,145,145
26	AVDIST	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 85,144
14	AVVBAR	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 86,89,97,113
14	AVVOL	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 89,90,92,115
21	B	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 104,105,107
11	BA	AUTOMATIC ALIGNED DECIMAL FIXED (5,2) 62,65,66
3	BA	/* IN TREE */ AUTOMATIC ALIGNED DECIMAL FIXED (4,2) 38,39

DCL NO.	IDENTIFIER	ATTRIBUTES AND REFERENCES
4	BAF	AUTOMATIC ALIGNED DECIMAL FIXED (5,0) 43,43,43,43,43,43,43,43,43,43,43,43,44,64,88,91
14	BAPA	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 88,89,114
52	BB	/* STATEMENT LABEL CONSTANT */
22	BRATIO	AUTOMATIC ALIGNED DECIMAL FIXED (6,0) 109,128
26	BVCOUNT	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 131,132
20	C	AUTOMATIC ALIGNED DECIMAL FIXED (5,2) 93,120
56	CC	/* STATEMENT LABEL CONSTANT */
24	CM	AUTOMATIC ALIGNED DECIMAL /* SINGLE */ FLOAT (6) 144,145
24	COST	AUTOMATIC ALIGNED DECIMAL /* SINGLE */ FLOAT (6) 145,147,150
12	COUNT	AUTOMATIC ALIGNED INITIAL DECIMAL FIXED (5,0) 1,45,67,67,85,86,87,94,96,96,96,100,101,104,110
21	COUNTQ	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 81,82
24	CTC	AUTOMATIC ALIGNED DECIMAL /* SINGLE */ FLOAT (6) 29,145
3	CUFT	/* IN TREE */ AUTOMATIC ALIGNED DECIMAL FIXED (5,2) 40,41
11	CUFT	AUTOMATIC ALIGNED DECIMAL FIXED (5,2) 63,65,66
25	CVTC	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 98,117,133
25	CVVBAR	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 101,117,132
24	CW	AUTOMATIC ALIGNED DECIMAL /* SINGLE */ FLOAT (6) 28,145
59	DD	/* STATEMENT LABEL CONSTANT */
11	DIAM	AUTOMATIC ALIGNED DECIMAL FIXED (5,2) 61,64,66
3	DIAM	/* IN TREE */ AUTOMATIC ALIGNED DECIMAL FIXED (4,1) 36,37

DCL NO.	IDENTIFIER	ATTRIBUTES AND REFERENCES
5	DIST	AUTOMATIC ALIGNED DECIMAL FIXED (8,1) 60,64,66,73
64	EE	/* STATEMENT LABEL CONSTANT */
********	FIXED	BUILTIN 111,126,127,147,150
138	GG	/* STATEMENT LABEL CONSTANT */
4	H	AUTOMATIC ALIGNED DECIMAL FIXED (5,0) 31,31,33,35,37,39,41
2	I	AUTOMATIC ALIGNED DECIMAL FIXED (8,1) 51,51,51,51,51,51,53,59,59,60
2	J	AUTOMATIC ALIGNED DECIMAL FIXED (8,1) 52,52,52,52,52,52,52,52,53,59,59,60
4	K	AUTOMATIC ALIGNED DECIMAL FIXED (5,0) 56,56,57,58,61,62,63
4	M	AUTOMATIC ALIGNED DECIMAL FIXED (5,0) 138,138,138,138,139,146,149
4	NPLOTS	AUTOMATIC ALIGNED DECIMAL FIXED (5,0) 30,87,91,91,91,93,94,94,94,98,99,103
24	NTC	AUTOMATIC ALIGNED DECIMAL /* SINGLE */ FLOAT (6) 106,108,126,140,143,145,145
4	NUM	AUTOMATIC ALIGNED DECIMAL FIXED (5,0) 55,70,70,81
24	NVBAR	AUTOMATIC ALIGNED DECIMAL /* SINGLE */ FLOAT (6) 107,108,127,129,141,145
27	PNTC	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 133,134,134,135,140
********	ROUND	BUILTIN 109,130,134
11	ROUNVBAR	AUTOMATIC ALIGNED DECIMAL FIXED (5,2) 129,130,130,131,136,141
23	SCOUNTQ	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 48,82,82,94
19	SE	AUTOMATIC ALIGNED DECIMAL FIXED (6,2) 91,92,118
17	SEP	AUTOMATIC ALIGNED DECIMAL FIXED (5,2) 92,93,119
21	SETCM	AUTOMATIC ALIGNED DECIMAL FIXED (8,2)

DCL NO.	IDENTIFIER	ATTRIBUTES AND REFERENCES
		94,95,99,121
21	SETCP	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 95,98,102,103,123
21	SETCVB	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 102,125
21	SEVBARM	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 96,97,100,122
21	SEVBARP	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 97,101,102,104,124
13	SMVBAR	AUTOMATIC ALIGNED INITIAL DECIMAL FIXED (10,2) 1,46,68,68,86,91,96,112
15	SPVBAR	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 54,69,69,77
18	SPVBARQ	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 77,78,79
25	STDETC	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 99,117
25	STDEVBR	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 100,117
23	SUMVBSQ	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 49,72,72,96
16	SVBARSQ	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 47,79,79,80,91
********	SYSIN	EXTERNAL FILE 32,34,36,38,40
********	SYSPRINT	EXTERNAL FILE PRINT 44,53,66,78,80,105,110,111,112,113,114,115,116,117,118,119,120,121,122,123, 124,125,126,127,128,135,136,137,147,150
26	TOTDIST	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 50,73,73,85
14	TOTVOL	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 90,116
3	TREE	AUTOMATIC /* STRUCTURE */
1	TREES	EXTERNAL ENTRY RETURNS(DECIMAL /* SINGLE */ FLOAT (6))
11	VBAR	AUTOMATIC ALIGNED DECIMAL FIXED (5,2) 65,66,68,69,71
21	VBARSQ	AUTOMATIC ALIGNED DECIMAL FIXED (8,2)

DCL NO.	IDENTIFIER	ATTRIBUTES AND REFERENCES
		71,72
24	WALK	AUTOMATIC ALIGNED DECIMAL /* SINGLE */ FLOAT (6) 143,145
2	XCO	AUTOMATIC ALIGNED DECIMAL FIXED (8,1) 32,33,57,59,59,60
2	YCO	AUTOMATIC ALIGNED DECIMAL FIXED (8,1) 34,35,58,59,59,60

AGGREGATE LENGTH TABLE

DCL NO.	IDENTIFIER	LVL	DIMS	OFFSET	ELEMENT LENGTH.	TOTAL LENGTH.
9	ARBA		1		3	4845
10	ARCUFT		1		3	4845
8	ARDIAM		1		3	4845
6	ARXCO		1		5	8075
7	ARYCO		1		5	8075
3	TREE	1			9	9
	DIAM	2			3	
	BA	2		3	3	
	CUFT	2		6	3	
				SUM OF CONSTANT LENGTHS		30694

STORAGE REQUIREMENTS

BLOCK, SECTION OR STATEMENT	TYPE	LENGTH	(HEX)	DSA SIZE	(HEX)
**TREES1	PROGRAM CSECT	9112	2398		
**TREES2	STATIC CSECT	3088	C10		
TREES	PROCEDURE BLOCK	9112	2398	31328	7A60

TABLES OF OFFSETS AND STATEMENT NUMBERS

WITHIN PROCEDURE TREES

OFFSET (HEX)	0	8C	94	9C	A2	A8	11E	13A	1B0	1CC	242	25E	2D4	2F0	366
STATEMENT NO.	1	28	29	30	31	32	33	34	35	36	37	38	39	40	41
OFFSET (HEX)	37E	38E	3A0	3E2	3E8	3EE	3F4	3FA	400	406	418	42A	490	496	49C
STATEMENT NO.	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
OFFSET (HEX)	4A2	4BE	4DA	532	5F6	61C	638	650	6F0	718	75A	760	766	76C	772
STATEMENT NO.	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71
OFFSET (HEX)	78A	790	7AC	7AC	7AC	7BC	808	85C	862	8B6	8D6	8DC	8E6	928	932
STATEMENT NO.	72	73	74	75	76	77	78	79	80	81	82	83	52	84	51
OFFSET (HEX)	95E	982	9A6	A18	A84	AA2	AC0	C60	C9C	D3C	E5C	EB4	1034	1070	1114
STATEMENT NO.	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99
OFFSET (HEX)	1186	1258	12FA	13A6	1448	14EA	152C	155E	1598	15C8	15E6	163A	16BA	170E	1762
STATEMENT NO.	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114
OFFSET (HEX)	1786	180A	185E	18A0	18F4	1948	199C	19F0	1A44	1A98	1AEC	1B40	1BC0	1C40	1CAA
STATEMENT NO.	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129
OFFSET (HEX)	1CDA	1D00	1D72	1E48	1EDE	1F04	1F58	1FAC	1FEA	1FFC	2006	2030	2058	2058	20F8
STATEMENT NO.	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144
OFFSET (HEX)	218C	21BC	21C6	2246	2246	2250	22D0	22D0	22DA	22F4	22FE	2380			
STATEMENT NO.	145	146	147	148	149	150	151	152	138	153	43	154			

NO MESSAGES PRODUCED FOR THIS COMPILATION

COMPILE TIME 0.04 MINS SPILL FILE: 0 RECORDS, SIZE 4051

OS/360 LOADER

OPTIONS USED - PRINT,MAP,LET,CALL,NORES,NOTERM,SIZE=247808,NAME=**GO

NAME	TYPE	ADDR	NAME	TYPE	ADDR	NAME	TYPE	ADDR	NAME	TYPE	ADDR	NAME	TYPE	ADDR
PLISTART	SD	1DC810	**TREES1	SD	1DC858	**TREES2	SD	1DEBF0	PLICALLA	LR	1DC816	PLICALLB	LR	1DC81A
PLIMAIN	SD	1DF800	IELCGIA	SD	1DF808	IELCGIB	SD	1DF878	TREES	LR	1DC860	SYSPINT	SD	1DF8B8
SYSIN	SD	1DF8D8	IBMBPIR1*	SD	1DF8F8	IBMBPIRA*	LR	1DF91A	IBMBPIRB*	LR	1DF91C	IBMBPIRC*	LR	1DF91E
IBMBSIO1*	SD	1DFBE8	IBMBSIOA*	LR	1DFBE8	IBMBSIOB*	LR	1DFBEA	IBMBSIOC*	LR	1DFBEC	IBMBSIOD*	LR	1DFBEE
IBMBSIOE*	LR	1DFBF0	IBMBSIOT*	LR	1DFDA6	IBMBCAC1*	SD	1DFE48	IBMBCACA*	LR	1DFE48	IBMBCTO1*	SD	1E0130
IBMBCTHD*	LR	1E0130	IBMBCTHX*	LR	1E0138	IBMBCTHF*	LR	1E0140	IBMBCTHP*	LR	1E0148	IBMBCTHE*	LR	1E0150
IBMBCWO1*	SD	1E03D0	IBMBCWDH*	LR	1E03D0	IBMBCWZH*	LR	1E03D0	IBMBMYL1*	SD	1E05C0	IBMBMYLA*	LR	1E05C0
IBMBMYS1*	SD	1E0660	IBMBMYSA*	LR	1E0660	IBMBOCL1*	SD	1E06F8	IBMBOCLA*	LR	1E06F8	IBMBOCLB*	LR	1E06FA
IBMBOCLC*	LR	1E06FC	IBMBOCLD*	LR	1E06FE	IBMBSDO1*	SD	1E0868	IBMBSDOD*	LR	1E0868	IBMBSDOC*	LR	1E086A
IBMBSDOB*	LR	1E086C	IBMBSDOA*	LR	1E086E	IBMBSDOT*	LR	1E0B3E	IBMBSEI1*	SD	1E0DE0	IBMBSEIA*	LR	1E0DE0
IBMBSEIT*	LR	1E0F9A	IBMBSFI1*	SD	1E0FF0	IBMBSFIA*	LR	1E0FF0	IBMBSFIR*	LR	1E10AE	IBMBSII1*	SD	1E10E0
IBMBSIIA*	LR	1E10E0	IBMBSIIB*	LR	1E10E2	IBMBSIIC*	LR	1E10E4	IBMBSIID*	LR	1E10E6	IBMBSIIT*	LR	1E10E8
IBMBSLO1*	SD	1E1308	IBMBSLOA*	LR	1E1308	IBMBSLOB*	LR	1E130A	IBMBSPL1*	SD	1E19E8	IBMBSPLA*	LR	1E19E8
IBMBSPLB*	LR	1E19EA	IBMBSPLC*	LR	1E19EC	IBMBSXC1*	SD	1E1CB8	IBMBSXCA*	LR	1E1CB8	IBMBSXCB*	LR	1E1CBA
IBMBSXCC*	LR	1E1CBC	IBMBSXCD*	LR	1E1CBE	IBMBCKO1*	SD	1E1ED0	IBMBCKDP*	LR	1E1ED0	IBMBCKZP*	LR	1E1ED0
IBMBCKDD*	LR	1E1ED8	IBMBCKZD*	LR	1E1ED8	IBMBERR1*	SD	1E2050	IBMBERRA*	LR	1E2050	IBMBERRB*	LR	1E2092
IBMBERRC*	LR	1E2674	IBMBEER1*	SD	1E2720	IBMBEERA*	LR	1E2720	IBMBSCV1*	SD	1E2728	IBMBSCVA*	LR	1E2728
IBMBMBL1*	SD	1E2968	IBMBMBLA*	LR	1E2968	IBMBMDL1*	SD	1E2B30	IBMBMDLC*	LR	1E2B30	IBMBMDLB*	LR	1E2B32
IBMBMDLA*	LR	1E2B36	IBMBMBS1*	SD	1E2C88	IBMBMBSA*	LR	1E2C88	IBMBMDS1*	SD	1E2D88	IBMBMDSC*	LR	1E2D88
IBMBMDSB*	LR	1E2D8A	IBMBMDSA*	LR	1E2D8E	IBMBEEF1*	SD	1E2E90	IBMBEEFA*	LR	1E2E90			

SYSIN PR 00

TOTAL LENGTH 67D0
ENTRY ADDRESS 1DC810

BAF= 5;

SAMPLE POINT COORDINATES ARE 1075.0 1100.0

DIAM=	17.80	BA=	1.72	CUFT=	41.57	VBAR=	24.16	DIST=	57.6;
DIAM=	7.50	BA=	0.30	CUFT=	5.17	VBAR=	17.23	DIST=	19.7;
DIAM=	8.10	BA=	0.35	CUFT=	6.18	VBAR=	17.65	DIST=	18.3;
DIAM=	15.60	BA=	1.32	CUFT=	29.89	VBAR=	22.64	DIST=	44.1;
DIAM=	9.70	BA=	0.51	CUFT=	9.44	VBAR=	18.50	DIST=	34.3;
DIAM=	16.10	BA=	1.41	CUFT=	32.33	VBAR=	22.92	DIST=	43.3;
DIAM=	17.20	BA=	1.61	CUFT=	38.14	VBAR=	23.68	DIST=	22.8;
DIAM=	11.10	BA=	0.67	CUFT=	13.02	VBAR=	19.43	DIST=	37.4;
DIAM=	11.90	BA=	0.77	CUFT=	15.39	VBAR=	19.98	DIST=	42.6;
DIAM=	7.10	BA=	0.27	CUFT=	4.55	VBAR=	16.85	DIST=	22.8;
DIAM=	5.20	BA=	0.14	CUFT=	2.25	VBAR=	16.07	DIST=	5.5;
DIAM=	8.50	BA=	0.39	CUFT=	6.92	VBAR=	17.74	DIST=	32.8;
DIAM=	13.10	BA=	0.93	CUFT=	19.44	VBAR=	20.90	DIST=	50.7;
DIAM=	14.50	BA=	1.14	CUFT=	24.94	VBAR=	21.87	DIST=	26.5;
DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST=	46.9;
DIAM=	17.80	BA=	1.72	CUFT=	41.57	VBAR=	24.16	DIST=	65.8;
DIAM=	17.30	BA=	1.63	CUFT=	38.70	VBAR=	23.74	DIST=	65.0;
DIAM=	16.10	BA=	1.41	CUFT=	32.33	VBAR=	22.92	DIST=	62.0;
DIAM=	12.00	BA=	0.78	CUFT=	15.71	VBAR=	20.14	DIST=	35.4;
DIAM=	22.00	BA=	2.63	CUFT=	71.26	VBAR=	27.09	DIST=	10.7;
DIAM=	18.60	BA=	1.88	CUFT=	46.45	VBAR=	24.70	DIST=	57.5;
DIAM=	20.80	BA=	2.35	CUFT=	61.72	VBAR=	26.26	DIST=	56.1;
DIAM=	7.90	BA=	0.34	CUFT=	5.83	VBAR=	17.14	DIST=	10.7;
DIAM=	6.00	BA=	0.19	CUFT=	3.10	VBAR=	16.31	DIST=	23.3;
DIAM=	9.90	BA=	0.53	CUFT=	9.91	VBAR=	18.69	DIST=	35.9;
DIAM=	14.20	BA=	1.09	CUFT=	23.69	VBAR=	21.73	DIST=	33.9;

SUM VBAR SQUARED = 297897.63

RUNNING TOTAL VBAR SQUARED = 297897.63

SAMPLE POINT COORDINATES ARE 1075.0 1305.0

DIAM=	12.80	BA=	0.89	CUFT=	18.37	VBAR=	20.64	DIST=	43.4;
DIAM=	12.20	BA=	0.81	CUFT=	16.35	VBAR=	20.18	DIST=	41.3;
DIAM=	11.90	BA=	0.77	CUFT=	15.39	VBAR=	19.98	DIST=	42.0;
DIAM=	11.60	BA=	0.73	CUFT=	14.47	VBAR=	19.82	DIST=	23.6;
DIAM=	12.30	BA=	0.82	CUFT=	16.68	VBAR=	20.34	DIST=	22.2;
DIAM=	13.60	BA=	1.00	CUFT=	21.31	VBAR=	21.31	DIST=	26.7;
DIAM=	6.30	BA=	0.21	CUFT=	3.46	VBAR=	16.47	DIST=	22.1;
DIAM=	15.40	BA=	1.29	CUFT=	28.95	VBAR=	22.44	DIST=	53.0;
DIAM=	13.50	BA=	0.99	CUFT=	20.93	VBAR=	21.14	DIST=	23.4;
DIAM=	14.40	BA=	1.13	CUFT=	24.52	VBAR=	21.69	DIST=	39.0;
DIAM=	11.20	BA=	0.68	CUFT=	13.30	VBAR=	19.55	DIST=	39.2;
DIAM=	13.60	BA=	1.00	CUFT=	21.31	VBAR=	21.31	DIST=	51.6;
DIAM=	11.50	BA=	0.72	CUFT=	14.18	VBAR=	19.69	DIST=	40.2;
DIAM=	12.60	BA=	0.86	CUFT=	17.68	VBAR=	20.55	DIST=	38.0;
DIAM=	10.30	BA=	0.57	CUFT=	10.89	VBAR=	19.10	DIST=	30.5;
DIAM=	13.00	BA=	0.92	CUFT=	19.08	VBAR=	20.73	DIST=	35.3;

DIAM=	9.70	BA=	0.51	CUFT=	9.44	VBAR=	18.50	DIST=	20.7;		
DIAM=	16.90	BA=	1.55	CUFT=	36.50	VBAR=	23.54	DIST=	32.3;		
DIAM=	13.30	BA=	0.96	CUFT=	20.18	VBAR=	21.02	DIST=	13.7;		
DIAM=	9.70	BA=	0.51	CUFT=	9.44	VBAR=	18.50	DIST=	32.3;		
DIAM=	12.00	BA=	0.78	CUFT=	15.71	VBAR=	20.14	DIST=	4.4;		
DIAM=	13.60	BA=	1.00	CUFT=	21.31	VBAR=	21.31	DIST=	11.8;		
DIAM=	12.90	BA=	0.90	CUFT=	18.73	VBAR=	20.81	DIST=	26.4;		
DIAM=	9.00	BA=	0.44	CUFT=	7.91	VBAR=	17.97	DIST=	16.8;		
DIAM=	8.70	BA=	0.41	CUFT=	7.30	VBAR=	17.80	DIST=	25.3;		
DIAM=	8.40	BA=	0.38	CUFT=	6.73	VBAR=	17.71	DIST=	23.8;		
DIAM=	13.20	BA=	0.95	CUFT=	19.81	VBAR=	20.85	DIST=	37.3;		
DIAM=	16.00	BA=	1.39	CUFT=	31.83	VBAR=	22.89	DIST=	33.8;		
DIAM=	14.70	BA=	1.17	CUFT=	25.80	VBAR=	22.05	DIST=	54.8;		

SUM VBAR SQUARED = 345779.28

RUNNING TOTAL VBAR SQUARED = 643676.91

SAMPLE POINT COORDINATES ARE 1075.0 1510.0

DIAM=	10.60	BA=	0.61	CUFT=	11.66	VBAR=	19.11	DIST=	31.4;		
DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST=	38.3;		
DIAM=	5.90	BA=	0.18	CUFT=	2.98	VBAR=	16.55	DIST=	14.9;		
DIAM=	8.20	BA=	0.36	CUFT=	6.36	VBAR=	17.66	DIST=	8.6;		
DIAM=	15.30	BA=	1.27	CUFT=	28.49	VBAR=	22.43	DIST=	29.4;		
DIAM=	8.30	BA=	0.37	CUFT=	6.54	VBAR=	17.67	DIST=	19.9;		
DIAM=	9.10	BA=	0.45	CUFT=	8.12	VBAR=	18.04	DIST=	24.2;		
DIAM=	11.50	BA=	0.72	CUFT=	14.18	VBAR=	19.69	DIST=	29.3;		
DIAM=	15.90	BA=	1.37	CUFT=	31.34	VBAR=	22.87	DIST=	60.3;		
DIAM=	12.80	BA=	0.89	CUFT=	18.37	VBAR=	20.64	DIST=	43.4;		
DIAM=	11.30	BA=	0.69	CUFT=	13.59	VBAR=	19.69	DIST=	16.8;		
DIAM=	12.10	BA=	0.79	CUFT=	16.03	VBAR=	20.29	DIST=	35.8;		
DIAM=	8.80	BA=	0.42	CUFT=	7.50	VBAR=	17.85	DIST=	28.7;		
DIAM=	16.80	BA=	1.53	CUFT=	35.96	VBAR=	23.50	DIST=	35.8;		
DIAM=	13.80	BA=	1.03	CUFT=	22.08	VBAR=	21.43	DIST=	51.9;		
DIAM=	16.20	BA=	1.43	CUFT=	32.84	VBAR=	22.96	DIST=	51.1;		
DIAM=	14.30	BA=	1.11	CUFT=	24.10	VBAR=	21.71	DIST=	39.3;		
DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST=	28.7;		
DIAM=	9.30	BA=	0.47	CUFT=	8.54	VBAR=	18.17	DIST=	27.6;		

SUM VBAR SQUARED = 149660.65

RUNNING TOTAL VBAR SQUARED = 793337.56

SAMPLE POINT COORDINATES ARE 1075.0 1715.0

DIAM=	17.00	BA=	1.57	CUFT=	37.04	VBAR=	23.59	DIST=	42.2;		
DIAM=	14.00	BA=	1.06	CUFT=	22.88	VBAR=	21.58	DIST=	39.9;		
DIAM=	8.00	BA=	0.34	CUFT=	6.00	VBAR=	17.64	DIST=	27.5;		
DIAM=	8.70	BA=	0.41	CUFT=	7.30	VBAR=	17.80	DIST=	3.9;		
DIAM=	8.60	BA=	0.40	CUFT=	7.11	VBAR=	17.77	DIST=	19.7;		
DIAM=	9.40	BA=	0.48	CUFT=	8.76	VBAR=	18.25	DIST=	33.8;		
DIAM=	16.20	BA=	1.43	CUFT=	32.84	VBAR=	22.96	DIST=	36.2;		
DIAM=	13.80	BA=	1.03	CUFT=	22.08	VBAR=	21.43	DIST=	36.5;		
DIAM=	13.70	BA=	1.02	CUFT=	21.69	VBAR=	21.26	DIST=	30.4;		
DIAM=	11.90	BA=	0.77	CUFT=	15.39	VBAR=	19.98	DIST=	17.9;		
DIAM=	10.00	BA=	0.54	CUFT=	10.15	VBAR=	18.79	DIST=	23.2;		
DIAM=	8.70	BA=	0.41	CUFT=	7.30	VBAR=	17.80	DIST=	29.5;		
DIAM=	10.90	BA=	0.64	CUFT=	12.46	VBAR=	19.46	DIST=	17.0;		
DIAM=	10.70	BA=	0.62	CUFT=	11.92	VBAR=	19.22	DIST=	6.2;		
DIAM=	10.50	BA=	0.60	CUFT=	11.40	VBAR=	19.00	DIST=	38.8;		
DIAM=	10.70	BA=	0.62	CUFT=	11.92	VBAR=	19.22	DIST=	41.2;		

DIAM=	15.70	BA=	1.34	CUFT=	30.37	VBAR=	22.66	DIST=	39.0;
DIAM=	14.00	BA=	1.06	CUFT=	22.88	VBAR=	21.58	DIST=	38.8;
DIAM=	20.90	BA=	2.38	CUFT=	62.48	VBAR=	26.25	DIST=	42.9;
DIAM=	14.10	BA=	1.08	CUFT=	23.28	VBAR=	21.55	DIST=	39.4;
DIAM=	17.70	BA=	1.70	CUFT=	40.99	VBAR=	24.11	DIST=	50.6;
DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST=	16.1;
DIAM=	9.60	BA=	0.50	CUFT=	9.21	VBAR=	18.42	DIST=	23.9;

SUM VBAR SQUARED = 224315.90

RUNNING TOTAL VBAR SQUARED = 1017653.46

SAMPLE POINT COORDINATES ARE 1280.0 1100.0

DIAM=	9.70	BA=	0.51	CUFT=	9.44	VBAR=	18.50	DIST=	17.4;
DIAM=	14.60	BA=	1.16	CUFT=	25.37	VBAR=	21.87	DIST=	53.1;
DIAM=	7.80	BA=	0.33	CUFT=	5.66	VBAR=	17.15	DIST=	29.2;
DIAM=	8.90	BA=	0.43	CUFT=	7.70	VBAR=	17.90	DIST=	30.1;
DIAM=	9.80	BA=	0.52	CUFT=	9.67	VBAR=	18.59	DIST=	17.0;
DIAM=	16.00	BA=	1.39	CUFT=	31.83	VBAR=	22.89	DIST=	58.6;
DIAM=	13.40	BA=	0.97	CUFT=	20.55	VBAR=	21.18	DIST=	45.5;
DIAM=	18.00	BA=	1.76	CUFT=	42.76	VBAR=	24.29	DIST=	52.6;
DIAM=	12.90	BA=	0.90	CUFT=	18.73	VBAR=	20.81	DIST=	37.9;
DIAM=	12.20	BA=	0.81	CUFT=	16.35	VBAR=	20.18	DIST=	25.8;
DIAM=	9.30	BA=	0.47	CUFT=	8.54	VBAR=	18.17	DIST=	24.1;
DIAM=	12.90	BA=	0.90	CUFT=	18.73	VBAR=	20.81	DIST=	30.0;
DIAM=	12.90	BA=	0.90	CUFT=	18.73	VBAR=	20.81	DIST=	19.9;
DIAM=	14.80	BA=	1.19	CUFT=	26.24	VBAR=	22.05	DIST=	29.7;
DIAM=	10.90	BA=	0.64	CUFT=	12.46	VBAR=	19.46	DIST=	18.7;
DIAM=	5.60	BA=	0.17	CUFT=	2.65	VBAR=	15.58	DIST=	7.3;
DIAM=	8.00	BA=	0.34	CUFT=	6.00	VBAR=	17.64	DIST=	7.9;
DIAM=	12.30	BA=	0.82	CUFT=	16.68	VBAR=	20.34	DIST=	27.1;
DIAM=	11.00	BA=	0.65	CUFT=	12.74	VBAR=	19.60	DIST=	22.2;
DIAM=	8.60	BA=	0.40	CUFT=	7.11	VBAR=	17.77	DIST=	7.6;
DIAM=	5.60	BA=	0.17	CUFT=	2.65	VBAR=	15.58	DIST=	19.5;
DIAM=	15.30	BA=	1.27	CUFT=	28.49	VBAR=	22.43	DIST=	52.0;
DIAM=	12.00	BA=	0.78	CUFT=	15.71	VBAR=	20.14	DIST=	15.7;
DIAM=	8.90	BA=	0.43	CUFT=	7.70	VBAR=	17.90	DIST=	33.2;
DIAM=	10.30	BA=	0.57	CUFT=	10.89	VBAR=	19.10	DIST=	35.7;
DIAM=	16.20	BA=	1.43	CUFT=	32.84	VBAR=	22.96	DIST=	54.2;
DIAM=	16.60	BA=	1.50	CUFT=	34.90	VBAR=	23.26	DIST=	55.5;
DIAM=	18.20	BA=	1.80	CUFT=	43.97	VBAR=	24.42	DIST=	26.1;
DIAM=	10.40	BA=	0.58	CUFT=	11.14	VBAR=	19.20	DIST=	22.2;
DIAM=	14.20	BA=	1.09	CUFT=	23.69	VBAR=	21.73	DIST=	39.9;

SUM VBAR SQUARED = 362777.33

RUNNING TOTAL VBAR SQUARED = 1380430.79

SAMPLE POINT COORDINATES ARE 1280.0 1305.0

DIAM=	19.80	BA=	2.13	CUFT=	54.43	VBAR=	25.55	DIST=	55.3;
DIAM=	10.40	BA=	0.58	CUFT=	11.14	VBAR=	19.20	DIST=	14.9;
DIAM=	10.20	BA=	0.56	CUFT=	10.64	VBAR=	19.00	DIST=	37.9;
DIAM=	11.30	BA=	0.69	CUFT=	13.59	VBAR=	19.69	DIST=	24.2;
DIAM=	16.10	BA=	1.41	CUFT=	32.33	VBAR=	22.92	DIST=	38.2;
DIAM=	11.10	BA=	0.67	CUFT=	13.02	VBAR=	19.43	DIST=	28.1;
DIAM=	11.30	BA=	0.69	CUFT=	13.59	VBAR=	19.69	DIST=	37.3;
DIAM=	14.40	BA=	1.13	CUFT=	24.52	VBAR=	21.69	DIST=	41.1;
DIAM=	11.00	BA=	0.65	CUFT=	12.74	VBAR=	19.60	DIST=	17.8;
DIAM=	10.50	BA=	0.60	CUFT=	11.40	VBAR=	19.00	DIST=	18.9;
DIAM=	15.00	BA=	1.22	CUFT=	27.12	VBAR=	22.22	DIST=	28.8;

DIAM= 12.20 BA= 0.81 CUFT= 16.35 VBAR= 20.18 DIST= 21.1;
DIAM= 10.40 BA= 0.58 CUFT= 11.14 VBAR= 19.20 DIST= 26.9;
DIAM= 6.90 BA= 0.25 CUFT= 4.27 VBAR= 17.08 DIST= 2.8;
DIAM= 9.70 BA= 0.51 CUFT= 9.44 VBAR= 18.50 DIST= 9.9;
DIAM= 5.30 BA= 0.15 CUFT= 2.34 VBAR= 15.60 DIST= 6.5;
DIAM= 12.80 BA= 0.89 CUFT= 18.37 VBAR= 20.64 DIST= 8.8;
DIAM= 17.70 BA= 1.70 CUFT= 40.99 VBAR= 24.11 DIST= 38.4;
DIAM= 7.50 BA= 0.30 CUFT= 5.17 VBAR= 17.23 DIST= 10.9;
DIAM= 15.70 BA= 1.34 CUFT= 30.37 VBAR= 22.66 DIST= 25.3;
DIAM= 17.00 BA= 1.57 CUFT= 37.04 VBAR= 23.59 DIST= 22.2;
DIAM= 11.50 BA= 0.72 CUFT= 14.18 VBAR= 19.69 DIST= 39.5;
DIAM= 15.40 BA= 1.29 CUFT= 28.95 VBAR= 22.44 DIST= 46.1;
DIAM= 17.10 BA= 1.59 CUFT= 37.59 VBAR= 23.64 DIST= 60.9;

SUM VBAR SQUARED = 242605.50

RUNNING TOTAL VBAR SQUARED = 1623036.29

SAMPLE POINT COORDINATES ARE 1280.0 1510.0
DIAM= 12.80 BA= 0.89 CUFT= 18.37 VBAR= 20.64 DIST= 36.4;
DIAM= 9.50 BA= 0.49 CUFT= 8.98 VBAR= 18.32 DIST= 22.3;
DIAM= 5.80 BA= 0.18 CUFT= 2.87 VBAR= 15.94 DIST= 14.3;
DIAM= 9.70 BA= 0.51 CUFT= 9.44 VBAR= 18.50 DIST= 30.0;
DIAM= 16.00 BA= 1.39 CUFT= 31.83 VBAR= 22.89 DIST= 44.1;
DIAM= 15.30 BA= 1.27 CUFT= 28.49 VBAR= 22.43 DIST= 43.2;
DIAM= 12.50 BA= 0.85 CUFT= 17.34 VBAR= 20.40 DIST= 45.7;
DIAM= 18.00 BA= 1.76 CUFT= 42.76 VBAR= 24.29 DIST= 51.2;
DIAM= 11.00 BA= 0.65 CUFT= 12.74 VBAR= 19.60 DIST= 7.1;

SUM VBAR SQUARED = 33492.66

RUNNING TOTAL VBAR SQUARED = 1656528.95

SAMPLE POINT COORDINATES ARE 1280.0 1715.0
DIAM= 11.80 BA= 0.75 CUFT= 15.08 VBAR= 20.10 DIST= 28.0;
DIAM= 9.50 BA= 0.49 CUFT= 8.98 VBAR= 18.32 DIST= 22.5;
DIAM= 16.10 BA= 1.41 CUFT= 32.33 VBAR= 22.92 DIST= 42.9;
DIAM= 14.90 BA= 1.21 CUFT= 26.68 VBAR= 22.04 DIST= 51.9;
DIAM= 11.30 BA= 0.69 CUFT= 13.59 VBAR= 19.69 DIST= 16.1;
DIAM= 5.20 BA= 0.14 CUFT= 2.25 VBAR= 16.07 DIST= 18.5;
DIAM= 5.50 BA= 0.16 CUFT= 2.55 VBAR= 15.93 DIST= 2.9;
DIAM= 8.20 BA= 0.36 CUFT= 6.36 VBAR= 17.66 DIST= 25.8;
DIAM= 11.30 BA= 0.69 CUFT= 13.59 VBAR= 19.69 DIST= 20.4;
DIAM= 11.20 BA= 0.68 CUFT= 13.30 VBAR= 19.55 DIST= 39.9;
DIAM= 19.20 BA= 2.01 CUFT= 50.34 VBAR= 25.04 DIST= 42.7;
DIAM= 11.60 BA= 0.73 CUFT= 14.47 VBAR= 19.82 DIST= 40.9;
DIAM= 6.90 BA= 0.25 CUFT= 4.27 VBAR= 17.08 DIST= 25.8;
DIAM= 5.00 BA= 0.13 CUFT= 2.06 VBAR= 15.84 DIST= 18.2;
DIAM= 6.10 BA= 0.20 CUFT= 3.22 VBAR= 16.10 DIST= 8.7;
DIAM= 11.10 BA= 0.67 CUFT= 13.02 VBAR= 19.43 DIST= 22.3;
DIAM= 10.30 BA= 0.57 CUFT= 10.89 VBAR= 19.10 DIST= 22.7;
DIAM= 12.10 BA= 0.79 CUFT= 16.03 VBAR= 20.29 DIST= 28.5;
DIAM= 16.40 BA= 1.46 CUFT= 33.86 VBAR= 23.19 DIST= 45.0;
DIAM= 15.30 BA= 1.27 CUFT= 28.49 VBAR= 22.43 DIST= 47.3;
DIAM= 17.00 BA= 1.57 CUFT= 37.04 VBAR= 23.59 DIST= 65.0;
DIAM= 6.90 BA= 0.25 CUFT= 4.27 VBAR= 17.08 DIST= 3.3;
DIAM= 6.40 BA= 0.22 CUFT= 3.59 VBAR= 16.31 DIST= 7.8;
DIAM= 6.10 BA= 0.20 CUFT= 3.22 VBAR= 16.10 DIST= 8.0;

SUM VBAR SQUARED = 214711.75

RUNNING TOTAL VBAR SQUARED = 1871240.70

SAMPLE POINT COORDINATES ARE 1485.0 1100.0

DIAM=	13.30	BA=	0.96	CUFT=	20.18	VBAR=	21.02	DIST=	37.5;
DIAM=	13.60	BA=	1.00	CUFT=	21.31	VBAR=	21.31	DIST=	36.0;
DIAM=	13.70	BA=	1.02	CUFT=	21.69	VBAR=	21.26	DIST=	22.9;
DIAM=	6.70	BA=	0.24	CUFT=	3.99	VBAR=	16.62	DIST=	24.9;
DIAM=	17.00	BA=	1.57	CUFT=	37.04	VBAR=	23.59	DIST=	31.3;
DIAM=	13.10	BA=	0.93	CUFT=	19.44	VBAR=	20.90	DIST=	43.2;
DIAM=	17.70	BA=	1.70	CUFT=	40.99	VBAR=	24.11	DIST=	63.3;
DIAM=	16.20	BA=	1.43	CUFT=	32.84	VBAR=	22.96	DIST=	44.0;
DIAM=	13.90	BA=	1.05	CUFT=	22.48	VBAR=	21.40	DIST=	26.4;
DIAM=	15.70	BA=	1.34	CUFT=	30.37	VBAR=	22.66	DIST=	15.8;
DIAM=	5.60	BA=	0.17	CUFT=	2.65	VBAR=	15.58	DIST=	10.8;
DIAM=	5.70	BA=	0.17	CUFT=	2.76	VBAR=	16.23	DIST=	20.1;
DIAM=	10.60	BA=	0.61	CUFT=	11.66	VBAR=	19.11	DIST=	13.0;
DIAM=	9.80	BA=	0.52	CUFT=	9.67	VBAR=	18.59	DIST=	23.7;
DIAM=	17.40	BA=	1.65	CUFT=	39.27	VBAR=	23.80	DIST=	6.2;
DIAM=	10.00	BA=	0.54	CUFT=	10.15	VBAR=	18.79	DIST=	37.7;
DIAM=	13.10	BA=	0.93	CUFT=	19.44	VBAR=	20.90	DIST=	9.5;
DIAM=	10.00	BA=	0.54	CUFT=	10.15	VBAR=	18.79	DIST=	17.2;
DIAM=	11.50	BA=	0.72	CUFT=	14.18	VBAR=	19.69	DIST=	44.0;
DIAM=	14.90	BA=	1.21	CUFT=	26.68	VBAR=	22.04	DIST=	48.3;
DIAM=	11.20	BA=	0.68	CUFT=	13.30	VBAR=	19.55	DIST=	43.1;
DIAM=	22.00	BA=	2.63	CUFT=	71.26	VBAR=	27.09	DIST=	51.8;
DIAM=	14.60	BA=	1.16	CUFT=	25.37	VBAR=	21.87	DIST=	40.6;

SUM VBAR SQUARED = 228350.17

RUNNING TOTAL VBAR SQUARED = 2099590.87

SAMPLE POINT COORDINATES ARE 1485.0 1305.0

DIAM=	17.20	BA=	1.61	CUFT=	38.14	VBAR=	23.68	DIST=	33.6;
DIAM=	19.10	BA=	1.98	CUFT=	49.68	VBAR=	25.09	DIST=	42.0;
DIAM=	6.30	BA=	0.21	CUFT=	3.46	VBAR=	16.47	DIST=	13.8;
DIAM=	11.10	BA=	0.67	CUFT=	13.02	VBAR=	19.43	DIST=	26.8;
DIAM=	6.70	BA=	0.24	CUFT=	3.99	VBAR=	16.62	DIST=	15.9;
DIAM=	9.60	BA=	0.50	CUFT=	9.21	VBAR=	18.42	DIST=	32.7;
DIAM=	21.90	BA=	2.61	CUFT=	70.43	VBAR=	26.98	DIST=	67.1;
DIAM=	9.70	BA=	0.51	CUFT=	9.44	VBAR=	18.50	DIST=	21.9;
DIAM=	8.50	BA=	0.39	CUFT=	6.92	VBAR=	17.74	DIST=	23.8;
DIAM=	15.30	BA=	1.27	CUFT=	28.49	VBAR=	22.43	DIST=	12.9;
DIAM=	15.40	BA=	1.29	CUFT=	28.95	VBAR=	22.44	DIST=	14.4;
DIAM=	13.00	BA=	0.92	CUFT=	19.08	VBAR=	20.73	DIST=	35.9;
DIAM=	15.60	BA=	1.32	CUFT=	29.89	VBAR=	22.64	DIST=	56.1;
DIAM=	13.90	BA=	1.05	CUFT=	22.48	VBAR=	21.40	DIST=	24.2;
DIAM=	20.30	BA=	2.24	CUFT=	58.00	VBAR=	25.89	DIST=	72.5;

SUM VBAR SQUARED = 101416.77

RUNNING TOTAL VBAR SQUARED = 2201007.64

SAMPLE POINT COORDINATES ARE 1485.0 1510.0

DIAM=	14.00	BA=	1.06	CUFT=	22.88	VBAR=	21.58	DIST=	30.6;
DIAM=	10.30	BA=	0.57	CUFT=	10.89	VBAR=	19.10	DIST=	1.4;
DIAM=	11.30	BA=	0.69	CUFT=	13.59	VBAR=	19.69	DIST=	23.0;
DIAM=	10.00	BA=	0.54	CUFT=	10.15	VBAR=	18.79	DIST=	21.1;
DIAM=	15.70	BA=	1.34	CUFT=	30.37	VBAR=	22.66	DIST=	56.0;
DIAM=	13.40	BA=	0.97	CUFT=	20.55	VBAR=	21.18	DIST=	39.1;
DIAM=	11.60	BA=	0.73	CUFT=	14.47	VBAR=	19.82	DIST=	35.0;

DIAM= 11.20 BA= 0.68 CUFT= 13.30 VBAR= 19.55 DIST= 38.0;
DIAM= 17.60 BA= 1.68 CUFT= 40.41 VBAR= 24.05 DIST= 18.7;
DIAM= 9.70 BA= 0.51 CUFT= 9.44 VBAR= 18.50 DIST= 29.4;
DIAM= 13.20 BA= 0.95 CUFT= 19.81 VBAR= 20.85 DIST= 32.2;
DIAM= 13.20 BA= 0.95 CUFT= 19.81 VBAR= 20.85 DIST= 49.4;
DIAM= 10.80 BA= 0.63 CUFT= 12.19 VBAR= 19.34 DIST= 12.6;

SUM VBAR SQUARED = 70734.72

RUNNING TOTAL VBAR SQUARED = 2271742.36

SAMPLE POINT COORDINATES ARE 1485.0 1715.0
DIAM= 14.70 BA= 1.17 CUFT= 25.80 VBAR= 22.05 DIST= 52.7;
DIAM= 5.30 BA= 0.15 CUFT= 2.34 VBAR= 15.60 DIST= 14.3;
DIAM= 9.20 BA= 0.46 CUFT= 8.33 VBAR= 18.10 DIST= 28.5;
DIAM= 13.60 BA= 1.00 CUFT= 21.31 VBAR= 21.31 DIST= 44.4;
DIAM= 11.30 BA= 0.69 CUFT= 13.59 VBAR= 19.69 DIST= 37.9;
DIAM= 8.70 BA= 0.41 CUFT= 7.30 VBAR= 17.80 DIST= 16.7;
DIAM= 16.90 BA= 1.55 CUFT= 36.50 VBAR= 23.54 DIST= 28.5;
DIAM= 20.80 BA= 2.35 CUFT= 61.72 VBAR= 26.26 DIST= 47.9;
DIAM= 7.00 BA= 0.26 CUFT= 4.41 VBAR= 16.96 DIST= 10.8;
DIAM= 10.90 BA= 0.64 CUFT= 12.46 VBAR= 19.46 DIST= 10.6;
DIAM= 6.80 BA= 0.25 CUFT= 4.12 VBAR= 16.48 DIST= 19.9;
DIAM= 6.10 BA= 0.20 CUFT= 3.22 VBAR= 16.10 DIST= 21.8;
DIAM= 6.20 BA= 0.20 CUFT= 3.34 VBAR= 16.70 DIST= 23.3;
DIAM= 13.50 BA= 0.99 CUFT= 20.93 VBAR= 21.14 DIST= 21.6;
DIAM= 11.90 BA= 0.77 CUFT= 15.39 VBAR= 19.98 DIST= 41.9;
DIAM= 12.30 BA= 0.82 CUFT= 16.68 VBAR= 20.34 DIST= 33.9;

SUM VBAR SQUARED = 97038.48

RUNNING TOTAL VBAR SQUARED = 2368780.84
A= 31.10 B= 12.35;

TOTAL NUMBER OF TREES SAMPLED = 251

AVERAGE TREE COUNT = 20.91

SUM VBAR = 5109.34

AVERAGE VBAR= 20.35

BASAL AREA PER ACRE = 104.58

AVERAGE VOLUME PER ACRE = 2128.20

TOTAL VOLUME IN CUBIC FEET = 24623.27

CVTC= 31.10 STDETC= 6.51 STDEVBR= 2.53 CVVBAR= 12.35;

STANDARD ERROR = 191.35

SAMPLING ERROR % = 8.99

COEFF. OF VARIATION % = 31.14

STANDARD ERROR OF MEAN TREE COUNT = 1.88

STANDARD ERROR OF MEAN VBAR = 0.16

SAMPLING ERROR OF TREE COUNT % = 8.98

SAMPLING ERROR OF VBAR % = 0.78

COMBINED SAMPLING ERROR TC & VBAR % = 9.01

OPTIMUM NUMBER OF TREE COUNT POINTS = 19.34
OPTIMUM NUMBER MEASUREMENT POINTS = 0.14

RATIO OF TREE COUNT POINTS TO MEASUREMENT POINTS IS 133 TO 1

PRACTICAL NUMBER OF TREE COUNT POINTS IS 11.00
PRACTICAL NUMBER OF MEASUREMENT POINTS IS 1.00

COST FOR COMBINED SAMPLING ERROR OF 10%

OPTIMUM COST = 36.80

PRACTICAL COST = 29.85

BAF= 10;

SAMPLE POINT COORDINATES ARE 1075.0 1100.0

DIAM=	7.50	BA=	0.30	CUFT=	5.17	VBAR=	17.23	DIST=	19.7;
DIAM=	8.10	BA=	0.35	CUFT=	6.18	VBAR=	17.65	DIST=	18.3;
DIAM=	16.10	BA=	1.41	CUFT=	32.33	VBAR=	22.92	DIST=	43.3;
DIAM=	17.20	BA=	1.61	CUFT=	38.14	VBAR=	23.68	DIST=	22.8;
DIAM=	5.20	BA=	0.14	CUFT=	2.25	VBAR=	16.07	DIST=	5.5;
DIAM=	14.50	BA=	1.14	CUFT=	24.94	VBAR=	21.87	DIST=	26.5;
DIAM=	22.00	BA=	2.63	CUFT=	71.26	VBAR=	27.09	DIST=	10.7;
DIAM=	20.80	BA=	2.35	CUFT=	61.72	VBAR=	26.26	DIST=	56.1;
DIAM=	7.90	BA=	0.34	CUFT=	5.83	VBAR=	17.14	DIST=	10.7;
DIAM=	14.20	BA=	1.09	CUFT=	23.69	VBAR=	21.73	DIST=	33.9;

SUM VBAR SQUARED = 44791.48

RUNNING TOTAL VBAR SQUARED = 44791.48

SAMPLE POINT COORDINATES ARE 1075.0 1305.0

DIAM=	11.60	BA=	0.73	CUFT=	14.47	VBAR=	19.82	DIST=	23.6;
DIAM=	12.30	BA=	0.82	CUFT=	16.68	VBAR=	20.34	DIST=	22.2;
DIAM=	13.60	BA=	1.00	CUFT=	21.31	VBAR=	21.31	DIST=	26.7;
DIAM=	13.50	BA=	0.99	CUFT=	20.93	VBAR=	21.14	DIST=	23.4;
DIAM=	14.40	BA=	1.13	CUFT=	24.52	VBAR=	21.69	DIST=	39.0;
DIAM=	13.00	BA=	0.92	CUFT=	19.08	VBAR=	20.73	DIST=	35.3;
DIAM=	9.70	BA=	0.51	CUFT=	9.44	VBAR=	18.50	DIST=	20.7;
DIAM=	16.90	BA=	1.55	CUFT=	36.50	VBAR=	23.54	DIST=	32.3;
DIAM=	13.30	BA=	0.96	CUFT=	20.18	VBAR=	21.02	DIST=	13.7;
DIAM=	12.00	BA=	0.78	CUFT=	15.71	VBAR=	20.14	DIST=	4.4;
DIAM=	13.60	BA=	1.00	CUFT=	21.31	VBAR=	21.31	DIST=	11.8;
DIAM=	12.90	BA=	0.90	CUFT=	18.73	VBAR=	20.81	DIST=	26.4;
DIAM=	9.00	BA=	0.44	CUFT=	7.91	VBAR=	17.97	DIST=	16.8;

DIAM= 16.00 BA= 1.39 CUFT= 31.83 VBAR= 22.89 DIST= 33.8;

SUM VBAR SQUARED = 84803.26

RUNNING TOTAL VBAR SQUARED = 129594.74

SAMPLE POINT COORDINATES ARE 1075.0 1510.0

DIAM= 16.70 BA= 1.52 CUFT= 35.43 VBAR= 23.30 DIST= 38.3;
DIAM= 5.90 BA= 0.18 CUFT= 2.98 VBAR= 16.55 DIST= 14.9;
DIAM= 8.20 BA= 0.36 CUFT= 6.36 VBAR= 17.66 DIST= 8.6;
DIAM= 15.30 BA= 1.27 CUFT= 28.49 VBAR= 22.43 DIST= 29.4;
DIAM= 8.30 BA= 0.37 CUFT= 6.54 VBAR= 17.67 DIST= 19.9;
DIAM= 9.10 BA= 0.45 CUFT= 8.12 VBAR= 18.04 DIST= 24.2;
DIAM= 11.50 BA= 0.72 CUFT= 14.18 VBAR= 19.69 DIST= 29.3;
DIAM= 11.30 BA= 0.69 CUFT= 13.59 VBAR= 19.69 DIST= 16.8;
DIAM= 16.80 BA= 1.53 CUFT= 35.96 VBAR= 23.50 DIST= 35.8;
DIAM= 14.30 BA= 1.11 CUFT= 24.10 VBAR= 21.71 DIST= 39.3;
DIAM= 16.70 BA= 1.52 CUFT= 35.43 VBAR= 23.30 DIST= 28.7;

SUM VBAR SQUARED = 49970.13

RUNNING TOTAL VBAR SQUARED = 179564.87

SAMPLE POINT COORDINATES ARE 1075.0 1715.0

DIAM= 17.00 BA= 1.57 CUFT= 37.04 VBAR= 23.59 DIST= 42.2;
DIAM= 8.70 BA= 0.41 CUFT= 7.30 VBAR= 17.80 DIST= 3.9;
DIAM= 8.60 BA= 0.40 CUFT= 7.11 VBAR= 17.77 DIST= 19.7;
DIAM= 16.20 BA= 1.43 CUFT= 32.84 VBAR= 22.96 DIST= 36.2;
DIAM= 13.80 BA= 1.03 CUFT= 22.08 VBAR= 21.43 DIST= 36.5;
DIAM= 13.70 BA= 1.02 CUFT= 21.69 VBAR= 21.26 DIST= 30.4;
DIAM= 11.90 BA= 0.77 CUFT= 15.39 VBAR= 19.98 DIST= 17.9;
DIAM= 10.00 BA= 0.54 CUFT= 10.15 VBAR= 18.79 DIST= 23.2;
DIAM= 10.90 BA= 0.64 CUFT= 12.46 VBAR= 19.46 DIST= 17.0;
DIAM= 10.70 BA= 0.62 CUFT= 11.92 VBAR= 19.22 DIST= 6.2;
DIAM= 15.70 BA= 1.34 CUFT= 30.37 VBAR= 22.66 DIST= 39.0;
DIAM= 20.90 BA= 2.38 CUFT= 62.48 VBAR= 26.25 DIST= 42.9;
DIAM= 16.70 BA= 1.52 CUFT= 35.43 VBAR= 23.30 DIST= 16.1;
DIAM= 9.60 BA= 0.50 CUFT= 9.21 VBAR= 18.42 DIST= 23.9;

SUM VBAR SQUARED = 85784.55

RUNNING TOTAL VBAR SQUARED = 265349.42

SAMPLE POINT COORDINATES ARE 1280.0 1100.0

DIAM= 9.70 BA= 0.51 CUFT= 9.44 VBAR= 18.50 DIST= 17.4;
DIAM= 9.80 BA= 0.52 CUFT= 9.67 VBAR= 18.59 DIST= 17.0;
DIAM= 12.20 BA= 0.81 CUFT= 16.35 VBAR= 20.18 DIST= 25.8;
DIAM= 9.30 BA= 0.47 CUFT= 8.54 VBAR= 18.17 DIST= 24.1;
DIAM= 12.90 BA= 0.90 CUFT= 18.73 VBAR= 20.81 DIST= 30.0;
DIAM= 12.90 BA= 0.90 CUFT= 18.73 VBAR= 20.81 DIST= 19.9;
DIAM= 14.80 BA= 1.19 CUFT= 26.24 VBAR= 22.05 DIST= 29.7;
DIAM= 10.90 BA= 0.64 CUFT= 12.46 VBAR= 19.46 DIST= 18.7;
DIAM= 5.60 BA= 0.17 CUFT= 2.65 VBAR= 15.58 DIST= 7.3;
DIAM= 8.00 BA= 0.34 CUFT= 6.00 VBAR= 17.64 DIST= 7.9;
DIAM= 12.30 BA= 0.82 CUFT= 16.68 VBAR= 20.34 DIST= 27.1;
DIAM= 11.00 BA= 0.65 CUFT= 12.74 VBAR= 19.60 DIST= 22.2;
DIAM= 8.60 BA= 0.40 CUFT= 7.11 VBAR= 17.77 DIST= 7.6;
DIAM= 12.00 BA= 0.78 CUFT= 15.71 VBAR= 20.14 DIST= 15.7;
DIAM= 18.20 BA= 1.80 CUFT= 43.97 VBAR= 24.42 DIST= 26.1;
DIAM= 10.40 BA= 0.58 CUFT= 11.14 VBAR= 19.20 DIST= 22.2;

SUM VBAR SQUARED = 98131.82

RUNNING TOTAL VBAR SQUARED = 363481.24

SAMPLE POINT COORDINATES ARE 1280.0 1305.0

DIAM=	10.40	BA=	0.58	CUFT=	11.14	VBAR=	19.20	DIST=	14.9;
DIAM=	11.30	BA=	0.69	CUFT=	13.59	VBAR=	19.69	DIST=	24.2;
DIAM=	16.10	BA=	1.41	CUFT=	32.33	VBAR=	22.92	DIST=	38.2;
DIAM=	11.10	BA=	0.67	CUFT=	13.02	VBAR=	19.43	DIST=	28.1;
DIAM=	11.00	BA=	0.65	CUFT=	12.74	VBAR=	19.60	DIST=	17.8;
DIAM=	10.50	BA=	0.60	CUFT=	11.40	VBAR=	19.00	DIST=	18.9;
DIAM=	15.00	BA=	1.22	CUFT=	27.12	VBAR=	22.22	DIST=	28.8;
DIAM=	12.20	BA=	0.81	CUFT=	16.35	VBAR=	20.18	DIST=	21.1;
DIAM=	10.40	BA=	0.58	CUFT=	11.14	VBAR=	19.20	DIST=	26.9;
DIAM=	6.90	BA=	0.25	CUFT=	4.27	VBAR=	17.08	DIST=	2.8;
DIAM=	9.70	BA=	0.51	CUFT=	9.44	VBAR=	18.50	DIST=	9.9;
DIAM=	5.30	BA=	0.15	CUFT=	2.34	VBAR=	15.60	DIST=	6.5;
DIAM=	12.80	BA=	0.89	CUFT=	18.37	VBAR=	20.64	DIST=	8.8;
DIAM=	17.70	BA=	1.70	CUFT=	40.99	VBAR=	24.11	DIST=	38.4;
DIAM=	7.50	BA=	0.30	CUFT=	5.17	VBAR=	17.23	DIST=	10.9;
DIAM=	15.70	BA=	1.34	CUFT=	30.37	VBAR=	22.66	DIST=	25.3;
DIAM=	17.00	BA=	1.57	CUFT=	37.04	VBAR=	23.59	DIST=	22.2;

SUM VBAR SQUARED = 116178.72

RUNNING TOTAL VBAR SQUARED = 479659.96

SAMPLE POINT COORDINATES ARE 1280.0 1510.0

DIAM=	9.50	BA=	0.49	CUFT=	8.98	VBAR=	18.32	DIST=	22.3;
DIAM=	5.80	BA=	0.18	CUFT=	2.87	VBAR=	15.94	DIST=	14.3;
DIAM=	11.00	BA=	0.65	CUFT=	12.74	VBAR=	19.60	DIST=	7.1;

SUM VBAR SQUARED = 2900.89

RUNNING TOTAL VBAR SQUARED = 482560.85

SAMPLE POINT COORDINATES ARE 1280.0 1715.0

DIAM=	11.80	BA=	0.75	CUFT=	15.08	VBAR=	20.10	DIST=	28.0;
DIAM=	9.50	BA=	0.49	CUFT=	8.98	VBAR=	18.32	DIST=	22.5;
DIAM=	16.10	BA=	1.41	CUFT=	32.33	VBAR=	22.92	DIST=	42.9;
DIAM=	11.30	BA=	0.69	CUFT=	13.59	VBAR=	19.69	DIST=	16.1;
DIAM=	5.50	BA=	0.16	CUFT=	2.55	VBAR=	15.93	DIST=	2.9;
DIAM=	11.30	BA=	0.69	CUFT=	13.59	VBAR=	19.69	DIST=	20.4;
DIAM=	19.20	BA=	2.01	CUFT=	50.34	VBAR=	25.04	DIST=	42.7;
DIAM=	6.10	BA=	0.20	CUFT=	3.22	VBAR=	16.10	DIST=	8.7;
DIAM=	11.10	BA=	0.67	CUFT=	13.02	VBAR=	19.43	DIST=	22.3;
DIAM=	10.30	BA=	0.57	CUFT=	10.89	VBAR=	19.10	DIST=	22.7;
DIAM=	12.10	BA=	0.79	CUFT=	16.03	VBAR=	20.29	DIST=	28.5;
DIAM=	16.40	BA=	1.46	CUFT=	33.86	VBAR=	23.19	DIST=	45.0;
DIAM=	6.90	BA=	0.25	CUFT=	4.27	VBAR=	17.08	DIST=	3.3;
DIAM=	6.40	BA=	0.22	CUFT=	3.59	VBAR=	16.31	DIST=	7.8;
DIAM=	6.10	BA=	0.20	CUFT=	3.22	VBAR=	16.10	DIST=	8.0;

SUM VBAR SQUARED = 83688.70

RUNNING TOTAL VBAR SQUARED = 566249.55

SAMPLE POINT COORDINATES ARE 1485.0 1100.0

DIAM=	13.60	BA=	1.00	CUFT=	21.31	VBAR=	21.31	DIST=	36.0;
DIAM=	13.70	BA=	1.02	CUFT=	21.69	VBAR=	21.26	DIST=	22.9;

DIAM= 17.00 BA= 1.57 CUFT= 37.04 VBAR= 23.59 DIST= 31.3;
DIAM= 16.20 BA= 1.43 CUFT= 32.84 VBAR= 22.96 DIST= 44.0;
DIAM= 13.90 BA= 1.05 CUFT= 22.48 VBAR= 21.40 DIST= 26.4;
DIAM= 15.70 BA= 1.34 CUFT= 30.37 VBAR= 22.66 DIST= 15.8;
DIAM= 5.60 BA= 0.17 CUFT= 2.65 VBAR= 15.58 DIST= 10.8;
DIAM= 10.60 BA= 0.61 CUFT= 11.66 VBAR= 19.11 DIST= 13.0;
DIAM= 9.80 BA= 0.52 CUFT= 9.67 VBAR= 18.59 DIST= 23.7;
DIAM= 17.40 BA= 1.65 CUFT= 39.27 VBAR= 23.80 DIST= 6.2;
DIAM= 13.10 BA= 0.93 CUFT= 19.44 VBAR= 20.90 DIST= 9.5;
DIAM= 10.00 BA= 0.54 CUFT= 10.15 VBAR= 18.79 DIST= 17.2;
DIAM= 22.00 BA= 2.63 CUFT= 71.26 VBAR= 27.09 DIST= 51.8;

SUM VBAR SQUARED = 76751.16

RUNNING TOTAL VBAR SQUARED = 643000.71

SAMPLE POINT COORDINATES ARE 1485.0 1305.0
DIAM= 17.20 BA= 1.61 CUFT= 38.14 VBAR= 23.68 DIST= 33.6;
DIAM= 19.10 BA= 1.98 CUFT= 49.68 VBAR= 25.09 DIST= 42.0;
DIAM= 6.30 BA= 0.21 CUFT= 3.46 VBAR= 16.47 DIST= 13.8;
DIAM= 11.10 BA= 0.67 CUFT= 13.02 VBAR= 19.43 DIST= 26.8;
DIAM= 6.70 BA= 0.24 CUFT= 3.99 VBAR= 16.62 DIST= 15.9;
DIAM= 9.70 BA= 0.51 CUFT= 9.44 VBAR= 18.50 DIST= 21.9;
DIAM= 15.30 BA= 1.27 CUFT= 28.49 VBAR= 22.43 DIST= 12.9;
DIAM= 15.40 BA= 1.29 CUFT= 28.95 VBAR= 22.44 DIST= 14.4;
DIAM= 13.90 BA= 1.05 CUFT= 22.48 VBAR= 21.40 DIST= 24.2;

SUM VBAR SQUARED = 34618.32

RUNNING TOTAL VBAR SQUARED = 677619.03

SAMPLE POINT COORDINATES ARE 1485.0 1510.0
DIAM= 14.00 BA= 1.06 CUFT= 22.88 VBAR= 21.58 DIST= 30.6;
DIAM= 10.30 BA= 0.57 CUFT= 10.89 VBAR= 19.10 DIST= 1.4;
DIAM= 11.30 BA= 0.69 CUFT= 13.59 VBAR= 19.69 DIST= 23.0;
DIAM= 10.00 BA= 0.54 CUFT= 10.15 VBAR= 18.79 DIST= 21.1;
DIAM= 17.60 BA= 1.68 CUFT= 40.41 VBAR= 24.05 DIST= 18.7;
DIAM= 13.20 BA= 0.95 CUFT= 19.81 VBAR= 20.85 DIST= 32.2;
DIAM= 10.80 BA= 0.63 CUFT= 12.19 VBAR= 19.34 DIST= 12.6;

SUM VBAR SQUARED = 20563.56

RUNNING TOTAL VBAR SQUARED = 698182.59

SAMPLE POINT COORDINATES ARE 1485.0 1715.0
DIAM= 5.30 BA= 0.15 CUFT= 2.34 VBAR= 15.60 DIST= 14.3;
DIAM= 8.70 BA= 0.41 CUFT= 7.30 VBAR= 17.80 DIST= 16.7;
DIAM= 16.90 BA= 1.55 CUFT= 36.50 VBAR= 23.54 DIST= 28.5;
DIAM= 20.80 BA= 2.35 CUFT= 61.72 VBAR= 26.26 DIST= 47.9;
DIAM= 7.00 BA= 0.26 CUFT= 4.41 VBAR= 16.96 DIST= 10.8;
DIAM= 10.90 BA= 0.64 CUFT= 12.46 VBAR= 19.46 DIST= 10.6;
DIAM= 13.50 BA= 0.99 CUFT= 20.93 VBAR= 21.14 DIST= 21.6;

SUM VBAR SQUARED = 19813.37

RUNNING TOTAL VBAR SQUARED = 717995.96
A= 37.27 B= 12.59;

TOTAL NUMBER OF TREES SAMPLED = 136

AVERAGE TREE COUNT = 11.33

SUM VBAR = 2763.80

AVERAGE VBAR= 20.32

BASAL AREA PER ACRE = 113.33

AVERAGE VOLUME PER ACRE = 2302.86

TOTAL VOLUME IN CUBIC FEET = 26644.09

CVTC= 37.27 STDETC= 4.22 STDEVBR= 2.56 CVVBAR= 12.59;

STANDARD ERROR = 248.39

SAMPLING ERROR % = 10.78

COEFF. OF VARIATION % = 37.34

STANDARD ERROR OF MEAN TREE COUNT = 1.22

STANDARD ERROR OF MEAN VBAR = 0.22

SAMPLING ERROR OF TREE COUNT % = 10.76

SAMPLING ERROR OF VBAR % = 1.08

COMBINED SAMPLING ERROR TC & VBAR % = 10.81

OPTIMUM NUMBER OF TREE COUNT POINTS = 27.78
OPTIMUM NUMBER MEASUREMENT POINTS = 0.27

RATIO OF TREE COUNT POINTS TO MEASUREMENT POINTS IS 99 TO 1

PRACTICAL NUMBER OF TREE COUNT POINTS IS 17.00
PRACTICAL NUMBER OF MEASUREMENT POINTS IS 1.00

COST FOR COMBINED SAMPLING ERROR OF 10%

OPTIMUM COST = 35.31

PRACTICAL COST = 27.35

BAF= 15;

SAMPLE POINT COORDINATES ARE 1075.0 1100.0

DIAM=	17.20	BA=	1.61	CUFT=	38.14	VBAR=	23.68	DIST=	22.8;
DIAM=	5.20	BA=	0.14	CUFT=	2.25	VBAR=	16.07	DIST=	5.5;
DIAM=	14.50	BA=	1.14	CUFT=	24.94	VBAR=	21.87	DIST=	26.5;
DIAM=	22.00	BA=	2.63	CUFT=	71.26	VBAR=	27.09	DIST=	10.7;
DIAM=	7.90	BA=	0.34	CUFT=	5.83	VBAR=	17.14	DIST=	10.7;

SUM VBAR SQUARED = 11204.22

RUNNING TOTAL VBAR SQUARED = 11204.22

SAMPLE POINT COORDINATES ARE 1075.0 1305.0

DIAM=	11.60	BA=	0.73	CUFT=	14.47	VBAR=	19.82	DIST=	23.6;
DIAM=	12.30	BA=	0.82	CUFT=	16.68	VBAR=	20.34	DIST=	22.2;
DIAM=	13.60	BA=	1.00	CUFT=	21.31	VBAR=	21.31	DIST=	26.7;
DIAM=	13.50	BA=	0.99	CUFT=	20.93	VBAR=	21.14	DIST=	23.4;
DIAM=	9.70	BA=	0.51	CUFT=	9.44	VBAR=	18.50	DIST=	20.7;
DIAM=	16.90	BA=	1.55	CUFT=	36.50	VBAR=	23.54	DIST=	32.3;
DIAM=	13.30	BA=	0.96	CUFT=	20.18	VBAR=	21.02	DIST=	13.7;
DIAM=	12.00	BA=	0.78	CUFT=	15.71	VBAR=	20.14	DIST=	4.4;
DIAM=	13.60	BA=	1.00	CUFT=	21.31	VBAR=	21.31	DIST=	11.8;
DIAM=	12.90	BA=	0.90	CUFT=	18.73	VBAR=	20.81	DIST=	26.4;
DIAM=	9.00	BA=	0.44	CUFT=	7.91	VBAR=	17.97	DIST=	16.8;
DIAM=	16.00	BA=	1.39	CUFT=	31.83	VBAR=	22.89	DIST=	33.8;

SUM VBAR SQUARED = 61896.46

RUNNING TOTAL VBAR SQUARED = 73100.68

SAMPLE POINT COORDINATES ARE 1075.0 1510.0

DIAM=	8.20	BA=	0.36	CUFT=	6.36	VBAR=	17.66	DIST=	8.6;
DIAM=	15.30	BA=	1.27	CUFT=	28.49	VBAR=	22.43	DIST=	29.4;
DIAM=	11.30	BA=	0.69	CUFT=	13.59	VBAR=	19.69	DIST=	16.8;
DIAM=	16.80	BA=	1.53	CUFT=	35.96	VBAR=	23.50	DIST=	35.8;
DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST=	28.7;

SUM VBAR SQUARED = 11359.29

RUNNING TOTAL VBAR SQUARED = 84459.97

SAMPLE POINT COORDINATES ARE 1075.0 1715.0

DIAM=	8.70	BA=	0.41	CUFT=	7.30	VBAR=	17.80	DIST=	3.9;
DIAM=	16.20	BA=	1.43	CUFT=	32.84	VBAR=	22.96	DIST=	36.2;
DIAM=	13.70	BA=	1.02	CUFT=	21.69	VBAR=	21.26	DIST=	30.4;
DIAM=	11.90	BA=	0.77	CUFT=	15.39	VBAR=	19.98	DIST=	17.9;
DIAM=	10.90	BA=	0.64	CUFT=	12.46	VBAR=	19.46	DIST=	17.0;
DIAM=	10.70	BA=	0.62	CUFT=	11.92	VBAR=	19.22	DIST=	6.2;
DIAM=	20.90	BA=	2.38	CUFT=	62.48	VBAR=	26.25	DIST=	42.9;
DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST=	16.1;

SUM VBAR SQUARED = 28978.25

RUNNING TOTAL VBAR SQUARED = 113438.22

SAMPLE POINT COORDINATES ARE 1280.0 1100.0

DIAM=	9.70	BA=	0.51	CUFT=	9.44	VBAR=	18.50	DIST=	17.4;
DIAM=	9.80	BA=	0.52	CUFT=	9.67	VBAR=	18.59	DIST=	17.0;
DIAM=	12.20	BA=	0.81	CUFT=	16.35	VBAR=	20.18	DIST=	25.8;
DIAM=	12.90	BA=	0.90	CUFT=	18.73	VBAR=	20.81	DIST=	19.9;
DIAM=	14.80	BA=	1.19	CUFT=	26.24	VBAR=	22.05	DIST=	29.7;
DIAM=	10.90	BA=	0.64	CUFT=	12.46	VBAR=	19.46	DIST=	18.7;
DIAM=	5.60	BA=	0.17	CUFT=	2.65	VBAR=	15.58	DIST=	7.3;
DIAM=	8.00	BA=	0.34	CUFT=	6.00	VBAR=	17.64	DIST=	7.9;
DIAM=	12.30	BA=	0.82	CUFT=	16.68	VBAR=	20.34	DIST=	27.1;
DIAM=	11.00	BA=	0.65	CUFT=	12.74	VBAR=	19.60	DIST=	22.2;
DIAM=	8.60	BA=	0.40	CUFT=	7.11	VBAR=	17.77	DIST=	7.6;
DIAM=	12.00	BA=	0.78	CUFT=	15.71	VBAR=	20.14	DIST=	15.7;

DIAM= 18.20 BA= 1.80 CUFT= 43.97 VBAR= 24.42 DIST= 26.1;
DIAM= 10.40 BA= 0.58 CUFT= 11.14 VBAR= 19.20 DIST= 22.2;

SUM VBAR SQUARED = 75229.51

RUNNING TOTAL VBAR SQUARED = 188667.73

SAMPLE POINT COORDINATES ARE 1280.0 1305.0

DIAM=	10.40	BA=	0.58	CUFT=	11.14	VBAR=	19.20	DIST= 14.9;
DIAM=	11.30	BA=	0.69	CUFT=	13.59	VBAR=	19.69	DIST= 24.2;
DIAM=	11.00	BA=	0.65	CUFT=	12.74	VBAR=	19.60	DIST= 17.8;
DIAM=	10.50	BA=	0.60	CUFT=	11.40	VBAR=	19.00	DIST= 18.9;
DIAM=	15.00	BA=	1.22	CUFT=	27.12	VBAR=	22.22	DIST= 28.8;
DIAM=	12.20	BA=	0.81	CUFT=	16.35	VBAR=	20.18	DIST= 21.1;
DIAM=	6.90	BA=	0.25	CUFT=	4.27	VBAR=	17.08	DIST= 2.8;
DIAM=	9.70	BA=	0.51	CUFT=	9.44	VBAR=	18.50	DIST= 9.9;
DIAM=	5.30	BA=	0.15	CUFT=	2.34	VBAR=	15.60	DIST= 6.5;
DIAM=	12.80	BA=	0.89	CUFT=	18.37	VBAR=	20.64	DIST= 8.8;
DIAM=	17.70	BA=	1.70	CUFT=	40.99	VBAR=	24.11	DIST= 38.4;
DIAM=	7.50	BA=	0.30	CUFT=	5.17	VBAR=	17.23	DIST= 10.9;
DIAM=	15.70	BA=	1.34	CUFT=	30.37	VBAR=	22.66	DIST= 25.3;
DIAM=	17.00	BA=	1.57	CUFT=	37.04	VBAR=	23.59	DIST= 22.2;

SUM VBAR SQUARED = 78008.48

RUNNING TOTAL VBAR SQUARED = 266676.21

SAMPLE POINT COORDINATES ARE 1280.0 1510.0

DIAM= 11.00 BA= 0.65 CUFT= 12.74 VBAR= 19.60 DIST= 7.1;

SUM VBAR SQUARED = 384.15

RUNNING TOTAL VBAR SQUARED = 267060.36

SAMPLE POINT COORDINATES ARE 1280.0 1715.0

DIAM=	11.30	BA=	0.69	CUFT=	13.59	VBAR=	19.69	DIST= 16.1;
DIAM=	5.50	BA=	0.16	CUFT=	2.55	VBAR=	15.93	DIST= 2.9;
DIAM=	11.30	BA=	0.69	CUFT=	13.59	VBAR=	19.69	DIST= 20.4;
DIAM=	19.20	BA=	2.01	CUFT=	50.34	VBAR=	25.04	DIST= 42.7;
DIAM=	6.10	BA=	0.20	CUFT=	3.22	VBAR=	16.10	DIST= 8.7;
DIAM=	11.10	BA=	0.67	CUFT=	13.02	VBAR=	19.43	DIST= 22.3;
DIAM=	10.30	BA=	0.57	CUFT=	10.89	VBAR=	19.10	DIST= 22.7;
DIAM=	6.90	BA=	0.25	CUFT=	4.27	VBAR=	17.08	DIST= 3.3;
DIAM=	6.40	BA=	0.22	CUFT=	3.59	VBAR=	16.31	DIST= 7.8;
DIAM=	6.10	BA=	0.20	CUFT=	3.22	VBAR=	16.10	DIST= 8.0;

SUM VBAR SQUARED = 34029.18

RUNNING TOTAL VBAR SQUARED = 301089.54

SAMPLE POINT COORDINATES ARE 1485.0 1100.0

DIAM=	13.70	BA=	1.02	CUFT=	21.69	VBAR=	21.26	DIST= 22.9;
DIAM=	17.00	BA=	1.57	CUFT=	37.04	VBAR=	23.59	DIST= 31.3;
DIAM=	13.90	BA=	1.05	CUFT=	22.48	VBAR=	21.40	DIST= 26.4;
DIAM=	15.70	BA=	1.34	CUFT=	30.37	VBAR=	22.66	DIST= 15.8;
DIAM=	5.60	BA=	0.17	CUFT=	2.65	VBAR=	15.58	DIST= 10.8;
DIAM=	10.60	BA=	0.61	CUFT=	11.66	VBAR=	19.11	DIST= 13.0;
DIAM=	17.40	BA=	1.65	CUFT=	39.27	VBAR=	23.80	DIST= 6.2;
DIAM=	13.10	BA=	0.93	CUFT=	19.44	VBAR=	20.90	DIST= 9.5;
DIAM=	10.00	BA=	0.54	CUFT=	10.15	VBAR=	18.79	DIST= 17.2;

SUM VBAR SQUARED = 35002.66

RUNNING TOTAL VBAR SQUARED = 336092.20

SAMPLE POINT COORDINATES ARE 1485.0 1305.0

DIAM=	17.20	BA=	1.61	CUFT=	38.14	VBAR=	23.68	DIST=	33.6;
DIAM=	19.10	BA=	1.98	CUFT=	49.68	VBAR=	25.09	DIST=	42.0;
DIAM=	6.30	BA=	0.21	CUFT=	3.46	VBAR=	16.47	DIST=	13.8;
DIAM=	15.30	BA=	1.27	CUFT=	28.49	VBAR=	22.43	DIST=	12.9;
DIAM=	15.40	BA=	1.29	CUFT=	28.95	VBAR=	22.44	DIST=	14.4;
DIAM=	13.90	BA=	1.05	CUFT=	22.48	VBAR=	21.40	DIST=	24.2;

SUM VBAR SQUARED = 17294.88

RUNNING TOTAL VBAR SQUARED = 353387.08

SAMPLE POINT COORDINATES ARE 1485.0 1510.0

DIAM=	14.00	BA=	1.06	CUFT=	22.88	VBAR=	21.58	DIST=	30.6;
DIAM=	10.30	BA=	0.57	CUFT=	10.89	VBAR=	19.10	DIST=	1.4;
DIAM=	11.30	BA=	0.69	CUFT=	13.59	VBAR=	19.69	DIST=	23.0;
DIAM=	10.00	BA=	0.54	CUFT=	10.15	VBAR=	18.79	DIST=	21.1;
DIAM=	17.60	BA=	1.68	CUFT=	40.41	VBAR=	24.05	DIST=	18.7;
DIAM=	10.80	BA=	0.63	CUFT=	12.19	VBAR=	19.34	DIST=	12.6;

SUM VBAR SQUARED = 15018.50

RUNNING TOTAL VBAR SQUARED = 368405.58

SAMPLE POINT COORDINATES ARE 1485.0 1715.0

DIAM=	8.70	BA=	0.41	CUFT=	7.30	VBAR=	17.80	DIST=	16.7;
DIAM=	16.90	BA=	1.55	CUFT=	36.50	VBAR=	23.54	DIST=	28.5;
DIAM=	7.00	BA=	0.26	CUFT=	4.41	VBAR=	16.96	DIST=	10.8;
DIAM=	10.90	BA=	0.64	CUFT=	12.46	VBAR=	19.46	DIST=	10.6;
DIAM=	13.50	BA=	0.99	CUFT=	20.93	VBAR=	21.14	DIST=	21.6;

SUM VBAR SQUARED = 9781.20

RUNNING TOTAL VBAR SQUARED = 378186.78
A= 50.29 B= 12.47;

TOTAL NUMBER OF TREES SAMPLED = 95

AVERAGE TREE COUNT = 7.91

SUM VBAR = 1929.15

AVERAGE VBAR= 20.30

BASAL AREA PER ACRE = 118.74

AVERAGE VOLUME PER ACRE = 2410.42

TOTAL VOLUME IN CUBIC FEET = 27888.55

CVTC= 50.29 STDETC= 3.98 STDEVBR= 2.53 CVVBAR= 12.47;

STANDARD ERROR = 340.58

SAMPLING ERROR % = 14.12

COEFF. OF VARIATION % = 48.91

STANDARD ERROR OF MEAN TREE COUNT = 1.15

STANDARD ERROR OF MEAN VBAR = 0.26

SAMPLING ERROR OF TREE COUNT % = 14.52

SAMPLING ERROR OF VBAR % = 1.28

COMBINED SAMPLING ERROR TC & VBAR % = 14.57

OPTIMUM NUMBER OF TREE COUNT POINTS = 50.58
OPTIMUM NUMBER MEASUREMENT POINTS = 0.39

RATIO OF TREE COUNT POINTS TO MEASUREMENT POINTS IS 129 TO 1

PRACTICAL NUMBER OF TREE COUNT POINTS IS 32.00
PRACTICAL NUMBER OF MEASUREMENT POINTS IS 1.00

COST FOR COMBINED SAMPLING ERROR OF 10%

OPTIMUM COST = 46.05

PRACTICAL COST = 34.75

BAF= 20;

SAMPLE POINT COORDINATES ARE 1075.0 1100.0

DIAM= 17.20	BA= 1.61	CUFT= 38.14	VBAR= 23.68	DIST= 22.8;
DIAM= 5.20	BA= 0.14	CUFT= 2.25	VBAR= 16.07	DIST= 5.5;
DIAM= 14.50	BA= 1.14	CUFT= 24.94	VBAR= 21.87	DIST= 26.5;
DIAM= 22.00	BA= 2.63	CUFT= 71.26	VBAR= 27.09	DIST= 10.7;
DIAM= 7.90	BA= 0.34	CUFT= 5.83	VBAR= 17.14	DIST= 10.7;

SUM VBAR SQUARED = 11204.22

RUNNING TOTAL VBAR SQUARED = 11204.22

SAMPLE POINT COORDINATES ARE 1075.0 1305.0

DIAM= 12.30	BA= 0.82	CUFT= 16.68	VBAR= 20.34	DIST= 22.2;
DIAM= 13.50	BA= 0.99	CUFT= 20.93	VBAR= 21.14	DIST= 23.4;
DIAM= 16.90	BA= 1.55	CUFT= 36.50	VBAR= 23.54	DIST= 32.3;
DIAM= 13.30	BA= 0.96	CUFT= 20.18	VBAR= 21.02	DIST= 13.7;
DIAM= 12.00	BA= 0.78	CUFT= 15.71	VBAR= 20.14	DIST= 4.4;
DIAM= 13.60	BA= 1.00	CUFT= 21.31	VBAR= 21.31	DIST= 11.8;
DIAM= 9.00	BA= 0.44	CUFT= 7.91	VBAR= 17.97	DIST= 16.8;

SUM VBAR SQUARED = 21158.61

RUNNING TOTAL VBAR SQUARED = 32362.83

SAMPLE POINT COORDINATES ARE 1075.0 1510.0

DIAM=	8.20	BA=	0.36	CUFT=	6.36	VBAR=	17.66	DIST= 8.6;
DIAM=	15.30	BA=	1.27	CUFT=	28.49	VBAR=	22.43	DIST= 29.4;
DIAM=	11.30	BA=	0.69	CUFT=	13.59	VBAR=	19.69	DIST= 16.8;
DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST= 28.7;

SUM VBAR SQUARED = 6902.28

RUNNING TOTAL VBAR SQUARED = 39265.11

SAMPLE POINT COORDINATES ARE 1075.0 1715.0

DIAM=	8.70	BA=	0.41	CUFT=	7.30	VBAR=	17.80	DIST= 3.9;
DIAM=	11.90	BA=	0.77	CUFT=	15.39	VBAR=	19.98	DIST= 17.9;
DIAM=	10.90	BA=	0.64	CUFT=	12.46	VBAR=	19.46	DIST= 17.0;
DIAM=	10.70	BA=	0.62	CUFT=	11.92	VBAR=	19.22	DIST= 6.2;
DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST= 16.1;

SUM VBAR SQUARED = 9952.05

RUNNING TOTAL VBAR SQUARED = 49217.16

SAMPLE POINT COORDINATES ARE 1280.0 1100.0

DIAM=	9.70	BA=	0.51	CUFT=	9.44	VBAR=	18.50	DIST= 17.4;
DIAM=	9.80	BA=	0.52	CUFT=	9.67	VBAR=	18.59	DIST= 17.0;
DIAM=	12.90	BA=	0.90	CUFT=	18.73	VBAR=	20.81	DIST= 19.9;
DIAM=	10.90	BA=	0.64	CUFT=	12.46	VBAR=	19.46	DIST= 18.7;
DIAM=	5.60	BA=	0.17	CUFT=	2.65	VBAR=	15.58	DIST= 7.3;
DIAM=	8.00	BA=	0.34	CUFT=	6.00	VBAR=	17.64	DIST= 7.9;
DIAM=	8.60	BA=	0.40	CUFT=	7.11	VBAR=	17.77	DIST= 7.6;
DIAM=	12.00	BA=	0.78	CUFT=	15.71	VBAR=	20.14	DIST= 15.7;
DIAM=	18.20	BA=	1.80	CUFT=	43.97	VBAR=	24.42	DIST= 26.1;

SUM VBAR SQUARED = 29897.86

RUNNING TOTAL VBAR SQUARED = 79115.02

SAMPLE POINT COORDINATES ARE 1280.0 1305.0

DIAM=	10.40	BA=	0.58	CUFT=	11.14	VBAR=	19.20	DIST= 14.9;
DIAM=	11.00	BA=	0.65	CUFT=	12.74	VBAR=	19.60	DIST= 17.8;
DIAM=	10.50	BA=	0.60	CUFT=	11.40	VBAR=	19.00	DIST= 18.9;
DIAM=	15.00	BA=	1.22	CUFT=	27.12	VBAR=	22.22	DIST= 28.8;
DIAM=	12.20	BA=	0.81	CUFT=	16.35	VBAR=	20.18	DIST= 21.1;
DIAM=	6.90	BA=	0.25	CUFT=	4.27	VBAR=	17.08	DIST= 2.8;
DIAM=	9.70	BA=	0.51	CUFT=	9.44	VBAR=	18.50	DIST= 9.9;
DIAM=	5.30	BA=	0.15	CUFT=	2.34	VBAR=	15.60	DIST= 6.5;
DIAM=	12.80	BA=	0.89	CUFT=	18.37	VBAR=	20.64	DIST= 8.8;
DIAM=	7.50	BA=	0.30	CUFT=	5.17	VBAR=	17.23	DIST= 10.9;
DIAM=	15.70	BA=	1.34	CUFT=	30.37	VBAR=	22.66	DIST= 25.3;
DIAM=	17.00	BA=	1.57	CUFT=	37.04	VBAR=	23.59	DIST= 22.2;

SUM VBAR SQUARED = 55460.25

RUNNING TOTAL VBAR SQUARED = 134575.27

SAMPLE POINT COORDINATES ARE 1280.0 1510.0

DIAM=	11.00	BA=	0.65	CUFT=	12.74	VBAR=	19.60	DIST= 7.1;

SUM VBAR SQUARED = 384.15

RUNNING TOTAL VBAR SQUARED = 134959.42

SAMPLE POINT COORDINATES ARE 1280.0 1715.0

DIAM=	11.30	BA=	0.69	CUFT=	13.59	VBAR=	19.69	DIST=	16.1;
DIAM=	5.50	BA=	0.16	CUFT=	2.55	VBAR=	15.93	DIST=	2.9;
DIAM=	11.30	BA=	0.69	CUFT=	13.59	VBAR=	19.69	DIST=	20.4;
DIAM=	6.10	BA=	0.20	CUFT=	3.22	VBAR=	16.10	DIST=	8.7;
DIAM=	6.90	BA=	0.25	CUFT=	4.27	VBAR=	17.08	DIST=	3.3;
DIAM=	6.40	BA=	0.22	CUFT=	3.59	VBAR=	16.31	DIST=	7.8;
DIAM=	6.10	BA=	0.20	CUFT=	3.22	VBAR=	16.10	DIST=	8.0;

SUM VBAR SQUARED = 14616.81

RUNNING TOTAL VBAR SQUARED = 149576.23

SAMPLE POINT COORDINATES ARE 1485.0 1100.0

DIAM=	13.70	BA=	1.02	CUFT=	21.69	VBAR=	21.26	DIST=	22.9;
DIAM=	17.00	BA=	1.57	CUFT=	37.04	VBAR=	23.59	DIST=	31.3;
DIAM=	13.90	BA=	1.05	CUFT=	22.48	VBAR=	21.40	DIST=	26.4;
DIAM=	15.70	BA=	1.34	CUFT=	30.37	VBAR=	22.66	DIST=	15.8;
DIAM=	5.60	BA=	0.17	CUFT=	2.65	VBAR=	15.58	DIST=	10.8;
DIAM=	10.60	BA=	0.61	CUFT=	11.66	VBAR=	19.11	DIST=	13.0;
DIAM=	17.40	BA=	1.65	CUFT=	39.27	VBAR=	23.80	DIST=	6.2;
DIAM=	13.10	BA=	0.93	CUFT=	19.44	VBAR=	20.90	DIST=	9.5;
DIAM=	10.00	BA=	0.54	CUFT=	10.15	VBAR=	18.79	DIST=	17.2;

SUM VBAR SQUARED = 35002.66

RUNNING TOTAL VBAR SQUARED = 184578.89

SAMPLE POINT COORDINATES ARE 1485.0 1305.0

DIAM=	15.30	BA=	1.27	CUFT=	28.49	VBAR=	22.43	DIST=	12.9;
DIAM=	15.40	BA=	1.29	CUFT=	28.95	VBAR=	22.44	DIST=	14.4;
DIAM=	13.90	BA=	1.05	CUFT=	22.48	VBAR=	21.40	DIST=	24.2;

SUM VBAR SQUARED = 4391.71

RUNNING TOTAL VBAR SQUARED = 188970.60

SAMPLE POINT COORDINATES ARE 1485.0 1510.0

DIAM=	10.30	BA=	0.57	CUFT=	10.89	VBAR=	19.10	DIST=	1.4;
DIAM=	17.60	BA=	1.68	CUFT=	40.41	VBAR=	24.05	DIST=	18.7;
DIAM=	10.80	BA=	0.63	CUFT=	12.19	VBAR=	19.34	DIST=	12.6;

SUM VBAR SQUARED = 3905.00

RUNNING TOTAL VBAR SQUARED = 192875.60

SAMPLE POINT COORDINATES ARE 1485.0 1715.0

DIAM=	8.70	BA=	0.41	CUFT=	7.30	VBAR=	17.80	DIST=	16.7;
DIAM=	16.90	BA=	1.55	CUFT=	36.50	VBAR=	23.54	DIST=	28.5;
DIAM=	7.00	BA=	0.26	CUFT=	4.41	VBAR=	16.96	DIST=	10.8;
DIAM=	10.90	BA=	0.64	CUFT=	12.46	VBAR=	19.46	DIST=	10.6;
DIAM=	13.50	BA=	0.99	CUFT=	20.93	VBAR=	21.14	DIST=	21.6;

SUM VBAR SQUARED = 9781.20

RUNNING TOTAL VBAR SQUARED = 202656.80

A= 52.82 B= 12.54;

TOTAL NUMBER OF TREES SAMPLED = 70

AVERAGE TREE COUNT = 5.83

SUM VBAR = 1397.81

AVERAGE VBAR= 19.96

BASAL AREA PER ACRE = 116.66

AVERAGE VOLUME PER ACRE = 2328.53

TOTAL VOLUME IN CUBIC FEET = 26941.09

CVTC= 52.82 STDETC= 3.08 STDEVBR= 2.50 CVVBAR= 12.54;

STANDARD ERROR = 347.43

SAMPLING ERROR % = 14.92

COEFF. OF VARIATION % = 51.68

STANDARD ERROR OF MEAN TREE COUNT = 0.89

STANDARD ERROR OF MEAN VBAR = 0.30

SAMPLING ERROR OF TREE COUNT % = 15.25

SAMPLING ERROR OF VBAR % = 1.50

COMBINED SAMPLING ERROR TC & VBAR % = 15.32

OPTIMUM NUMBER OF TREE COUNT POINTS = 55.79
OPTIMUM NUMBER MEASUREMENT POINTS = 0.53

RATIO OF TREE COUNT POINTS TO MEASUREMENT POINTS IS 103 TO 1

PRACTICAL NUMBER OF TREE COUNT POINTS IS 39.00
PRACTICAL NUMBER OF MEASUREMENT POINTS IS 1.00

COST FOR COMBINED SAMPLING ERROR OF 10%

OPTIMUM COST = 43.53

PRACTICAL COST = 34.92

BAF= 30;

SAMPLE POINT COORDINATES ARE 1075.0 1100.0

DIAM=	17.20	BA=	1.61	CUFT=	38.14	VBAR=	23.68	DIST=	22.8;
DIAM=	5.20	BA=	0.14	CUFT=	2.25	VBAR=	16.07	DIST=	5.5;
DIAM=	22.00	BA=	2.63	CUFT=	71.26	VBAR=	27.09	DIST=	10.7;
DIAM=	7.90	BA=	0.34	CUFT=	5.83	VBAR=	17.14	DIST=	10.7;

SUM VBAR SQUARED = 7052.64

RUNNING TOTAL VBAR SQUARED = 7052.64

SAMPLE POINT COORDINATES ARE 1075.0 1305.0

DIAM=	13.30	BA=	0.96	CUFT= 20.18	VBAR= 21.02	DIST=	13.7;
DIAM=	12.00	BA=	0.78	CUFT= 15.71	VBAR= 20.14	DIST=	4.4;
DIAM=	13.60	BA=	1.00	CUFT= 21.31	VBAR= 21.31	DIST=	11.8;

SUM VBAR SQUARED = 3902.50

RUNNING TOTAL VBAR SQUARED = 10955.14

SAMPLE POINT COORDINATES ARE 1075.0 1510.0

DIAM=	8.20	BA=	0.36	CUFT= 6.36	VBAR= 17.66	DIST=	8.6;
DIAM=	11.30	BA=	0.69	CUFT= 13.59	VBAR= 19.69	DIST=	16.8;

SUM VBAR SQUARED = 1395.02

RUNNING TOTAL VBAR SQUARED = 12350.16

SAMPLE POINT COORDINATES ARE 1075.0 1715.0

DIAM=	8.70	BA=	0.41	CUFT= 7.30	VBAR= 17.80	DIST=	3.9;
DIAM=	11.90	BA=	0.77	CUFT= 15.39	VBAR= 19.98	DIST=	17.9;
DIAM=	10.90	BA=	0.64	CUFT= 12.46	VBAR= 19.46	DIST=	17.0;
DIAM=	10.70	BA=	0.62	CUFT= 11.92	VBAR= 19.22	DIST=	6.2;
DIAM=	16.70	BA=	1.52	CUFT= 35.43	VBAR= 23.30	DIST=	16.1;

SUM VBAR SQUARED = 9952.05

RUNNING TOTAL VBAR SQUARED = 22302.21

SAMPLE POINT COORDINATES ARE 1280.0 1100.0

DIAM=	12.90	BA=	0.90	CUFT= 18.73	VBAR= 20.81	DIST=	19.9;
DIAM=	5.60	BA=	0.17	CUFT= 2.65	VBAR= 15.58	DIST=	7.3;
DIAM=	8.00	BA=	0.34	CUFT= 6.00	VBAR= 17.64	DIST=	7.9;
DIAM=	8.60	BA=	0.40	CUFT= 7.11	VBAR= 17.77	DIST=	7.6;
DIAM=	12.00	BA=	0.78	CUFT= 15.71	VBAR= 20.14	DIST=	15.7;
DIAM=	18.20	BA=	1.80	CUFT= 43.97	VBAR= 24.42	DIST=	26.1;

SUM VBAR SQUARED = 13539.64

RUNNING TOTAL VBAR SQUARED = 35841.85

SAMPLE POINT COORDINATES ARE 1280.0 1305.0

DIAM=	10.40	BA=	0.58	CUFT= 11.14	VBAR= 19.20	DIST=	14.9;
DIAM=	6.90	BA=	0.25	CUFT= 4.27	VBAR= 17.08	DIST=	2.8;
DIAM=	9.70	BA=	0.51	CUFT= 9.44	VBAR= 18.50	DIST=	9.9;
DIAM=	5.30	BA=	0.15	CUFT= 2.34	VBAR= 15.60	DIST=	6.5;
DIAM=	12.80	BA=	0.89	CUFT= 18.37	VBAR= 20.64	DIST=	8.8;
DIAM=	7.50	BA=	0.30	CUFT= 5.17	VBAR= 17.23	DIST=	10.9;
DIAM=	17.00	BA=	1.57	CUFT= 37.04	VBAR= 23.59	DIST=	22.2;

SUM VBAR SQUARED = 17381.78

RUNNING TOTAL VBAR SQUARED = 53223.63

SAMPLE POINT COORDINATES ARE 1280.0 1510.0

DIAM=	11.00	BA=	0.65	CUFT= 12.74	VBAR= 19.60	DIST=	7.1;

SUM VBAR SQUARED = 384.15

RUNNING TOTAL VBAR SQUARED = 53607.78

SAMPLE POINT COORDINATES ARE 1280.0 1715.0

DIAM=	11.30	BA=	0.69	CUFT=	13.59	VBAR=	19.69	DIST=	16.1;
DIAM=	5.50	BA=	0.16	CUFT=	2.55	VBAR=	15.93	DIST=	2.9;
DIAM=	6.10	BA=	0.20	CUFT=	3.22	VBAR=	16.10	DIST=	8.7;
DIAM=	6.90	BA=	0.25	CUFT=	4.27	VBAR=	17.08	DIST=	3.3;
DIAM=	6.40	BA=	0.22	CUFT=	3.59	VBAR=	16.31	DIST=	7.8;
DIAM=	6.10	BA=	0.20	CUFT=	3.22	VBAR=	16.10	DIST=	8.0;

SUM VBAR SQUARED = 10243.46

RUNNING TOTAL VBAR SQUARED = 63851.24

SAMPLE POINT COORDINATES ARE 1485.0 1100.0

DIAM=	15.70	BA=	1.34	CUFT=	30.37	VBAR=	22.66	DIST=	15.8;
DIAM=	10.60	BA=	0.61	CUFT=	11.66	VBAR=	19.11	DIST=	13.0;
DIAM=	17.40	BA=	1.65	CUFT=	39.27	VBAR=	23.80	DIST=	6.2;
DIAM=	13.10	BA=	0.93	CUFT=	19.44	VBAR=	20.90	DIST=	9.5;

SUM VBAR SQUARED = 7477.06

RUNNING TOTAL VBAR SQUARED = 71328.30

SAMPLE POINT COORDINATES ARE 1485.0 1305.0

DIAM=	15.30	BA=	1.27	CUFT=	28.49	VBAR=	22.43	DIST=	12.9;
DIAM=	15.40	BA=	1.29	CUFT=	28.95	VBAR=	22.44	DIST=	14.4;

SUM VBAR SQUARED = 2013.31

RUNNING TOTAL VBAR SQUARED = 73341.61

SAMPLE POINT COORDINATES ARE 1485.0 1510.0

DIAM=	10.30	BA=	0.57	CUFT=	10.89	VBAR=	19.10	DIST=	1.4;
DIAM=	17.60	BA=	1.68	CUFT=	40.41	VBAR=	24.05	DIST=	18.7;
DIAM=	10.80	BA=	0.63	CUFT=	12.19	VBAR=	19.34	DIST=	12.6;

SUM VBAR SQUARED = 3905.00

RUNNING TOTAL VBAR SQUARED = 77246.61

SAMPLE POINT COORDINATES ARE 1485.0 1715.0

DIAM=	7.00	BA=	0.26	CUFT=	4.41	VBAR=	16.96	DIST=	10.8;
DIAM=	10.90	BA=	0.64	CUFT=	12.46	VBAR=	19.46	DIST=	10.6;

SUM VBAR SQUARED = 1326.41

RUNNING TOTAL VBAR SQUARED = 78573.02

A= 50.78 B= 14.02:

TOTAL NUMBER OF TREES SAMPLED = 45

AVERAGE TREE COUNT = 3.75

SUM VBAR = 882.82

AVERAGE VBAR= 19.61

BASAL AREA PER ACRE = 112.50

AVERAGE VOLUME PER ACRE = 2206.12

TOTAL VOLUME IN CUBIC FEET = 25524.80

CVTC= 50.78 STDETC= 1.90 STDEVBR= 2.75 CVVBAR= 14.02;

STANDARD ERROR = 304.79

SAMPLING ERROR % = 13.81

COEFF. OF VARIATION % = 47.83

STANDARD ERROR OF MEAN TREE COUNT = 0.55

STANDARD ERROR OF MEAN VBAR = 0.41

SAMPLING ERROR OF TREE COUNT % = 14.66

SAMPLING ERROR OF VBAR % = 2.09

COMBINED SAMPLING ERROR TC & VBAR % = 14.80

OPTIMUM NUMBER OF TREE COUNT POINTS = 51.57
OPTIMUM NUMBER MEASUREMENT POINTS = 1.04

RATIO OF TREE COUNT POINTS TO MEASUREMENT POINTS IS 49 TO 1

PRACTICAL NUMBER OF TREE COUNT POINTS IS 35.00
PRACTICAL NUMBER OF MEASUREMENT POINTS IS 2.00

COST FOR COMBINED SAMPLING ERROR OF 10%

OPTIMUM COST = 36.01

PRACTICAL COST = 29.18

BAF= 40;

SAMPLE POINT COORDINATES ARE 1075.0 1100.0

DIAM=	17.20	BA=	1.61	CUFT=	38.14	VBAR=	23.68	DIST=	22.8;
DIAM=	5.20	BA=	0.14	CUFT=	2.25	VBAR=	16.07	DIST=	5.5;
DIAM=	22.00	BA=	2.63	CUFT=	71.26	VBAR=	27.09	DIST=	10.7;
DIAM=	7.90	BA=	0.34	CUFT=	5.83	VBAR=	17.14	DIST=	10.7;

SUM VBAR SQUARED = 7052.64

RUNNING TOTAL VBAR SQUARED = 7052.64

SAMPLE POINT COORDINATES ARE 1075.0 1305.0

DIAM=	13.30	BA=	0.96	CUFT=	20.18	VBAR=	21.02	DIST=	13.7;

DIAM= 12.00 BA= 0.78 CUFT= 15.71 VBAR= 20.14 DIST= 4.4;
DIAM= 13.60 BA= 1.00 CUFT= 21.31 VBAR= 21.31 DIST= 11.8;

SUM VBAR SQUARED = 3902.50

RUNNING TOTAL VBAR SQUARED = 10955.14

SAMPLE POINT COORDINATES ARE 1075.0 1510.0
DIAM= 8.20 BA= 0.36 CUFT= 6.36 VBAR= 17.66 DIST= 8.6;

SUM VBAR SQUARED = 311.87

RUNNING TOTAL VBAR SQUARED = 11267.01

SAMPLE POINT COORDINATES ARE 1075.0 1715.0
DIAM= 8.70 BA= 0.41 CUFT= 7.30 VBAR= 17.80 DIST= 3.9;
DIAM= 10.70 BA= 0.62 CUFT= 11.92 VBAR= 19.22 DIST= 6.2;
DIAM= 16.70 BA= 1.57 CUFT= 35.43 VBAR= 23.30 DIST= 16.1;

SUM VBAR SQUARED = 3638.50

RUNNING TOTAL VBAR SQUARED = 14905.51

SAMPLE POINT COORDINATES ARE 1280.0 1100.0
DIAM= 5.60 BA= 0.17 CUFT= 2.65 VBAR= 15.58 DIST= 7.3;
DIAM= 8.00 BA= 0.34 CUFT= 6.00 VBAR= 17.64 DIST= 7.9;
DIAM= 8.60 BA= 0.40 CUFT= 7.11 VBAR= 17.77 DIST= 7.6;
DIAM= 12.00 BA= 0.78 CUFT= 15.71 VBAR= 20.14 DIST= 15.7;

SUM VBAR SQUARED = 5059.47

RUNNING TOTAL VBAR SQUARED = 19964.98

SAMPLE POINT COORDINATES ARE 1280.0 1305.0
DIAM= 6.90 BA= 0.25 CUFT= 4.27 VBAR= 17.08 DIST= 2.8;
DIAM= 9.70 BA= 0.51 CUFT= 9.44 VBAR= 18.50 DIST= 9.9;
DIAM= 5.30 BA= 0.15 CUFT= 2.34 VBAR= 15.60 DIST= 6.5;
DIAM= 12.80 BA= 0.89 CUFT= 18.37 VBAR= 20.64 DIST= 8.8;
DIAM= 17.00 BA= 1.57 CUFT= 37.04 VBAR= 23.59 DIST= 22.2;

SUM VBAR SQUARED = 9103.06

RUNNING TOTAL VBAR SQUARED = 29068.04

SAMPLE POINT COORDINATES ARE 1280.0 1510.0
DIAM= 11.00 BA= 0.65 CUFT= 12.74 VBAR= 19.60 DIST= 7.1;

SUM VBAR SQUARED = 384.15

RUNNING TOTAL VBAR SQUARED = 29452.19

SAMPLE POINT COORDINATES ARE 1280.0 1715.0
DIAM= 5.50 BA= 0.16 CUFT= 2.55 VBAR= 15.93 DIST= 2.9;
DIAM= 6.90 BA= 0.25 CUFT= 4.27 VBAR= 17.08 DIST= 3.3;
DIAM= 6.40 BA= 0.22 CUFT= 3.59 VBAR= 16.31 DIST= 7.8;
DIAM= 6.10 BA= 0.20 CUFT= 3.22 VBAR= 16.10 DIST= 8.0;

SUM VBAR SQUARED = 4279.77

RUNNING TOTAL VBAR SQUARED = 33731.96

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SAMPLE POINT COORDINATES ARE                    1485.0          1100.0
DIAM=   15.70          BA=    1.34      CUFT=   30.37      VBAR=   22.66      DIST=    15.8;
DIAM=   10.60          BA=    0.61      CUFT=   11.66      VBAR=   19.11      DIST=    13.0;
DIAM=   17.40          BA=    1.65      CUFT=   39.27      VBAR=   23.80      DIST=     6.2;
DIAM=   13.10          BA=    0.93      CUFT=   19.44      VBAR=   20.90      DIST=     9.5;

SUM VBAR SQUARED =          7477.06

RUNNING TOTAL VBAR SQUARED =                   41209.02

SAMPLE POINT COORDINATES ARE                    1485.0          1305.0
DIAM=   15.30          BA=    1.27      CUFT=   28.49      VBAR=   22.43      DIST=    12.9;
DIAM=   15.40          BA=    1.29      CUFT=   28.95      VBAR=   22.44      DIST=    14.4;

SUM VBAR SQUARED =          2013.31

RUNNING TOTAL VBAR SQUARED =                   43222.33

SAMPLE POINT COORDINATES ARE                    1485.0          1510.0
DIAM=   10.30          BA=    0.57      CUFT=   10.89      VBAR=   19.10      DIST=     1.4;
DIAM=   17.60          BA=    1.68      CUFT=   40.41      VBAR=   24.05      DIST=    18.7;
DIAM=   10.80          BA=    0.63      CUFT=   12.19      VBAR=   19.34      DIST=    12.6;

SUM VBAR SQUARED =          3905.00

RUNNING TOTAL VBAR SQUARED =                   47127.33

SAMPLE POINT COORDINATES ARE                    1485.0          1715.0
DIAM=   10.90          BA=    0.64      CUFT=   12.46      VBAR=   19.46      DIST=    10.6;

SUM VBAR SQUARED =           378.69

RUNNING TOTAL VBAR SQUARED =                   47506.02
A=      46.31          B=     14.67;


TOTAL NUMBER OF TREES SAMPLED =                   35

AVERAGE TREE COUNT =        2.91

SUM VBAR =                689.28

AVERAGE VBAR=              19.69

BASAL AREA PER ACRE =     116.66

AVERAGE VOLUME PER ACRE =                   2297.03

TOTAL VOLUME IN CUBIC FEET =                26576.63

CVTC=      46.31      STDETC=       1.35      STDEVBR=       2.89      CVVBAR=      14.67;

STANDARD ERROR =          309.71

SAMPLING ERROR % =         13.48

COEFF. OF VARIATION % =    46.69

STANDARD ERROR OF MEAN TREE COUNT =            0.39
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STANDARD ERROR OF MEAN VBAR = 0.49

SAMPLING ERROR OF TREE COUNT % = 13.37

SAMPLING ERROR OF VBAR % = 2.48

COMBINED SAMPLING ERROR TC & VBAR % = 13.59

OPTIMUM NUMBER OF TREE COUNT POINTS = 42.89
OPTIMUM NUMBER MEASUREMENT POINTS = 1.47

RATIO OF TREE COUNT POINTS TO MEASUREMENT POINTS IS 29 TO 1

PRACTICAL NUMBER OF TREE COUNT POINTS IS 35.00
PRACTICAL NUMBER OF MEASUREMENT POINTS IS 2.00

COST FOR COMBINED SAMPLING ERROR OF 10%

OPTIMUM COST = 30.40

PRACTICAL COST = 27.32

END JOB 97
END JOB 97
END JOB 97
END JOB 97

1.56.52 PM
1.56.52 PM
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10 MAR 77
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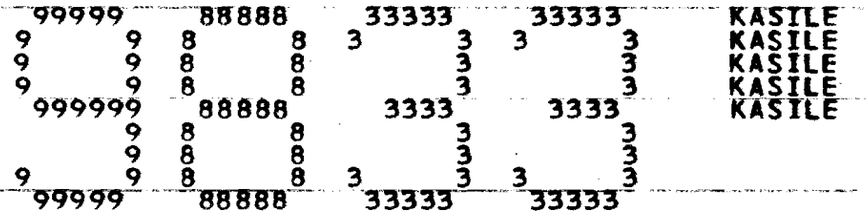

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OPTIONS USED

AGGREGATE	NOCOUNT	CHARSET(60,EBCDIC)
ATTRIBUTES	NODECK	NOCOMPILE(S)
GOSTMT	NOESD	FLAG(I)
INSOURCE	NOFLOW	LINECOUNT(62)
LMESSAGE	NOGONUMBER	MARGINI('|')
NEST	NOIMPRECISE	MARGINS(2,72,1)
OBJECT	NOINCLUDE	SEQUENCE(73,80)
OFFSET	NOLIST	SIZE(247504)
OPTIONS	NOMACRO	NOSYNTAX(S)
SOURCE	NOMAP	
STMT	NOMDECK	
STORAGE	NONUMBER	
XREF	NOOPTIMIZE	
	NOTERMINAL	

16 Point Cruise

SOURCE LISTING

```
STMT LEV NT

   1       0  TREES:PROC OPTIONS(MAIN);
              /*                                                          */
              /*      THIS PROGRAM IS A SAMPLING SIMULATION OF VARIABLE PLOT */
              /* CRUISING. THE DATA CONSIST OF AN 11.57 ACRE UNEVEN AGED STAND OF */
              /* HARDWOODS. FOR EACH OF THESE 1615 TREES, DATA ARE GIVEN ON TREE */
              /* SPECIES, LOCATION IN X AND Y COORDINATES (IN FEET), DIAMETER (IN */
              /* INCHES), BASAL AREA (IN SQUARE FEET), VOLUME (IN CUBIC FEET), */
              /* AND HEIGHT (IN FEET).                                    */
              /*      TO CHANGE THE NUMBER OF SAMPLING POINTS, ONE MUST CHANGE */
              /* THREE CARDS. THEY ARE CARDS IN STATEMENTS 30, 51, AND 52. NPLOTS */
              /* IN STATEMENT 30 REPRESENTS THE NUMBER OF SAMPLING POINTS.  */
              /* STATEMENTS 51 AND 52 SPECIFY WHERE THESE POINTS ARE. DUE TO THE */
              /* SETUP OF THE COORDINATE SYSTEM, X MUST LIE BETWEEN 1075' AND */
              /* 1485' AND Y MUST LIE BETWEEN 1100' AND 1715'.            */
              /*                                                          */
   2   1   0  DCL (XCO,YCO,I,J) FIXED(8,1);
   3   1   0  DCL 1 TREE,
                 2 DIAM FIXED(4,1),
                 2 BA FIXED(4,2),
                 2 CUFT FIXED(5,2);
   4   1   0  DCL(K,H,M,BAF,NPLOTS,NUM) FIXED(5,0);
   5   1   0  DCL (DIST) FIXED(8,1);
   6   1   0   DCL ARXCO(1615) FIXED(8,1);
   7   1   0   DCL ARYCO(1615) FIXED(8,1);
   8   1   0   DCL ARDIAM(1615) FIXED(5,1);
   9   1   0   DCL ARBA(1615) FIXED(4,2);
  10   1   0   DCL ARCUFT(1615) FIXED(4,2);
  11   1   0  DCL(DIAM,BA,CUFT,VBAR,ROUNVBAR) FIXED(5,2);
  12   1   0  DCL COUNT FIXED(5,0) INIT(0);
  13   1   0  DCL SMVBAR FIXED(10,2) INIT(0);
  14   1   0  DCL(AVVBAR,BAPA,AVVOL,TOTVOL) FIXED(10,2);
  15   1   0  DCL SPVBAR FIXED(8,2);
  16   1   0  DCL SVBARSQ FIXED(10,2);
  17   1   0  DCL SEP FIXED(5,2);
  18   1   0  DCL SPVBARQ FIXED(8,2);
  19   1   0  DCL SE FIXED(6,2);
  20   1   0  DCL C FIXED(5,2);
  21   1   0  DCL(VBARSQ,COUNTQ,SETCM,SETCP,SEVBARM,SEVBARP,SETCVB,A,B,ARATIO)
                 FIXED(8,2);
  22   1   0  DCL BRATIO FIXED(6,0);
  23   1   0  DCL (SCOUNTQ,SUMVBSQ) FIXED(10,2);
  24   1   0  DCL (CW,CTC,CM,WALK,NTC,NVBAR,COST) FLOAT;
  25   1   0  DCL(CVTC,SIDETC,SIDEVBR,CVVBAR) FIXED(8,2);
  26   1   0  DCL(TOTDIST,AVDIST,BVCOUNT) FIXED(10,2);
  27   1   0  DCL(ASETC,PNTC) FIXED(8,2);
  28   1   0  CW=.5;
  29   1   0  CTC=.05;
  30   1   0  NPLOTS=16;
  31   1   0  AAA:DO H=1 TO 1615;
  32   1   1      GET EDIT(XCO)(COL(14),F(6,1));
  33   1   1      ARXCO(H)=XCO;
  34   1   1      GET EDIT(YCO)(COL(24),F(6,1));
  35   1   1      ARYCO(H)=YCO;
```

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STMT LEV NT

  36   1  1      GET EDIT (TREE.DIAM)(COL(33),F(4,1));
  37   1  1      ARDIAM(H)=TREE.DIAM;
  38   1  1      GET EDIT (TREE.BA)(COL(40),F(4,2));
  39   1  1      ARBA(H)=TREE.BA;
  40   1  1      GET EDIT (TREE.CUFT)(COL(51),F(5,2));
  41   1  1      ARCUFT(H)=TREE.CUFT;
  42   1  1      END AAA;
  43   1  0  AB:DO BAF=5,10,15,20,30,40;
  44   1  1      PUT SKIP(10) DATA(BAF);
  45   1  1      COUNT=0;
  46   1  1      SMVBAR=0;
  47   1  1      SVBARSQ=0;
  48   1  1      SCOUNTQ=0;
  49   1  1      SUMVBSQ=0;
  50   1  1      TOTDIST=0;
  51   1  1  AA:DO I=1075,1212,1349,1485;
  52   1  2   BB:DO J=1100,1305,1510,1715;
  53   1  3   PUT SKIP(2) LIST('SAMPLE POINT COORDINATES ARE',I,J);
  54   1  3    SPVBAR=0;
  55   1  3    NUM=0;
  56   1  3    CC:DO K=1 TO 1615;
  57   1  4       XCO=ARXCO(K);
  58   1  4       YCO=ARYCO(K);
  59   1  4   IF (((XCO<(I+100)) & (XCO>(I-100))) & ((YCO<(J+100)) & (YCO>(J-100))))
               THEN DD:DO;
  60   1  5       DIST=((((XCO-I)**2)+((YCO-J)**2))**.5);
  61   1  5       DIAM=ARDIAM(K);
  62   1  5       BA=ARBA(K);
  63   1  5       CUFT=ARCUFT(K);
  64   1  5       IF BAF<=((43560)/(1+(576*((DIST/DIAM)**2)))) THEN EE:DO;
  65   1  6       VBAR=CUFT/BA;
  66   1  6       PUT SKIP DATA(DIAM,BA,CUFT,VBAR,DIST);
  67   1  6       COUNT=COUNT+1;
  68   1  6       SMVBAR=SMVBAR+VBAR;
  69   1  6       SPVBAR=SPVBAR+VBAR;
  70   1  6       NUM=NUM+1;
  71   1  6       VBARSQ=VBAR**2;
  72   1  6       SUMVBSQ=SUMVBSQ+VBARSQ;
  73   1  6       TOTDIST=TOTDIST+DIST;
  74   1  6       END EE;
  75   1  5     END DD;
  76   1  4    END CC;
  77   1  3    SPVBARQ=SPVBAR**2;
  78   1  3     PUT SKIP(2) LIST('SUM VBAR SQUARED =',SPVBARQ);
  79   1  3    SVBARSQ=SVBARSQ+SPVBARQ;
  80   1  3    PUT SKIP(2) LIST('RUNNING TOTAL VBAR SQUARED =',SVBARSQ);
  81   1  3    COUNTQ=NUM**2;
  82   1  3    SCOUNTQ=SCOUNTQ+COUNTQ;
  83   1  3   END BB;
  84   1  2  END AA;
  85   1  1  AVDIST=TOTDIST/COUNT;
  86   1  1  AVVBAR=SMVBAR/COUNT;
  87   1  1  AVCOUNT=COUNT/NPLOTS;
  88   1  1  BAPA=BAF*AVCOUNT;
  89   1  1  AVVOL=BAPA*AVVBAR;
  90   1  1  TOTVOL=11.57*AVVOL;
```

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STMT LEV NI

  91   1  1  SE=(((SVBARSQ-((SMVBAR**2)/NPLOTS))/(NPLOTS*(NPLOTS-1)))**.5)*BAF;
  92   1  1  SEP=(SE/AVVOL)*100;
  93   1  1  C=SEP*(NPLOTS**.5);
  94   1  1  SETCM=(((SCOUNTQ-((COUNT**2)/NPLOTS))/(NPLOTS*(NPLOTS-1)))**.5);
  95   1  1  SETCP=((SETCM/AVCOUNT)*100);
  96   1  1  SEVBARM=(((SUMVBSQ-((SMVBAR**2)/COUNT))/(COUNT*(COUNT-1)))**.5);
  97   1  1  SEVBARP=((SEVBARM/AVVBAR)*100);
  98   1  1  CVTC=(SETCP*((NPLOTS)**.5));
  99   1  1  STDETC=(SETCM*((NPLOTS)**.5));
 100   1  1  STDEVBR=(SEVBARM*((COUNT)**.5));
 101   1  1  CVVBAR=(SEVBARP*((COUNT)**.5));
 102   1  1  SETCVB=(((SETCP**2)+(SEVBARP**2))**.5);
 103   1  1    A=((NPLOTS**.5)*SETCP);
 104   1  1    B=((COUNT**.5)*SEVBARP);
 105   1  1    PUT SKIP DATA(A,B);
 106   1  1    NTC=((A**2)/50);
 107   1  1    NVBAR=(((B**2)/50)/AVCOUNT);
 108   1  1    ARATIO=(NTC/NVBAR);
 109   1  1    BRATIO=ROUND(ARATIO,0);
 110   1  1  PUT SKIP(3) LIST('TOTAL NUMBER OF TREES SAMPLED =',COUNT);
 111   1  1  PUT SKIP(2) LIST('AVERAGE TREE COUNT =',(FIXED(AVCOUNT,5,2)));
 112   1  1  PUT SKIP(2) LIST('SUM VBAR =',SMVBAR);
 113   1  1  PUT SKIP(2) LIST('AVERAGE VBAR=',AVVBAR);
 114   1  1  PUT SKIP(2) LIST('BASAL AREA PER ACRE =',BAPA);
 115   1  1  PUT SKIP(2) LIST('AVERAGE VOLUME PER ACRE =',AVVOL);
 116   1  1  PUT SKIP(2) LIST('TOTAL VOLUME IN CUBIC FEET =',TOTVOL);
 117   1  1  PUT SKIP(2) DATA(CVTC,STDETC,STDEVBR,CVVBAR);
 118   1  1  PUT SKIP(2) LIST('STANDARD ERROR =',SE);
 119   1  1  PUT SKIP(2) LIST('SAMPLING ERROR % =',SEP);
 120   1  1  PUT SKIP(2) LIST('COEFF. OF VARIATION % =',C);
 121   1  1  PUT SKIP(2) LIST('STANDARD ERROR OF MEAN TREE COUNT =',SETCM);
 122   1  1  PUT SKIP(2) LIST('STANDARD ERROR OF MEAN VBAR =',SEVBARM);
 123   1  1  PUT SKIP(2) LIST('SAMPLING ERROR OF TREE COUNT % =',SETCP);
 124   1  1  PUT SKIP(2) LIST('SAMPLING ERROR OF VBAR % =',SEVBARP);
 125   1  1  PUT SKIP(2) LIST('COMBINED SAMPLING ERROR TC & VBAR % =',SETCVB);
 126   1  1  PUT SKIP(2) LIST('OPTIMUM NUMBER OF TREE COUNT POINTS =',
                 (FIXED(NTC,5,2)));
 127   1  1  PUT SKIP LIST('OPTIMUM NUMBER MEASUREMENT POINTS =',
                (FIXED(NVBAR,5,2)));
 128   1  1  PUT SKIP(2) LIST('RATIO OF TREE COUNT POINTS TO MEASUREMENT POINTS IS',
            BRATIO,'TO 1');
 129   1  1  ROUNVBAR=NVBAR+.5;
 130   1  1  ROUNVBAR=ROUND(ROUNVBAR,0);
 131   1  1  BVCOUNT=AVCOUNT*ROUNVBAR;
 132   1  1  ASETC=((100-((CVVBAR**2)/BVCOUNT))**.5);
 133   1  1  PNTC=(((CVTC/ASETC)**2)+.5);
 134   1  1  PNTC=ROUND(PNTC,0);
 135   1  1  PUT SKIP(2) LIST('PRACTICAL NUMBER OF TREE COUNT POINTS IS',PNTC);
 136   1  1  PUT SKIP LIST('PRACTICAL NUMBER OF MEASUREMENT POINTS IS ',ROUNVBAR);
 137   1  1  PUT SKIP(2) LIST('COST FOR COMBINED SAMPLING ERROR OF 10%');
 138   1  1  GG:DO M=1,2;
 139   1  2    IF M=2 THEN DO;
 140   1  3    NTC=PNTC;
 141   1  3    NVBAR=ROUNVBAR;
 142   1  3    END;
 143   1  2    WALK=(((11.57*43560)/NTC)**.5);
```

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STMT LEV NT

 144   1  2   |  CM=(.16+((AVDIST/100)*.5));
 145   1  2   |COST=((NTC*(CW*(WALK/100)))+(CTC*(AVCOUNT*NTC))+(CM*(AVCOUNT*NVBAR)));
 146   1  2   |  IF M=1 THEN DO;
 147   1  3   |PUT SKIP(2) LIST('OPTIMUM COST =',(FIXED(COST,5,2)));
 148   1  3   |END;
 149   1  2   |IF M=2 THEN DO;
 150   1  3   |PUT SKIP(2) LIST('PRACTICAL COST =',(FIXED(COST,5,2)));
 151   1  3   |END;
 152   1  2   |END GG;
 153   1  1   |END AB;
 154   1  0   |END TREES;
```

ATTRIBUTE AND CROSS-REFERENCE TABLE

DCL NO.	IDENTIFIER	ATTRIBUTES AND REFERENCES
21	A	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 103,105,106
51	AA	/* STATEMENT LABEL CONSTANT */
31	AAA	/* STATEMENT LABEL CONSTANT */
43	AB	/* STATEMENT LABEL CONSTANT */
21	ARATIO	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 108,109
9	ARBA	(1615) AUTOMATIC ALIGNED DECIMAL FIXED (4,2) 39,62
10	ARCUFT	(1615) AUTOMATIC ALIGNED DECIMAL FIXED (4,2) 41,63
8	ARDIAM	(1615) AUTOMATIC ALIGNED DECIMAL FIXED (5,1) 37,61
6	ARXCO	(1615) AUTOMATIC ALIGNED DECIMAL FIXED (8,1) 33,57
7	ARYCO	(1615) AUTOMATIC ALIGNED DECIMAL FIXED (8,1) 35,58
27	ASETC	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 132,133
********	AVCOUNT	AUTOMATIC ALIGNED DECIMAL /* SINGLE */ FLOAT (6) 87,88,95,107,111,131,145,145
26	AVDIST	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 85,144
14	AVVBAR	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 86,89,97,113
14	AVVOL	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 89,90,92,115
21	B	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 104,105,107
11	BA	AUTOMATIC ALIGNED DECIMAL FIXED (5,2) 62,65,66
3	BA	/* IN TREE */ AUTOMATIC ALIGNED DECIMAL FIXED (4,2) 38,39

DCL NO.	IDENTIFIER	ATTRIBUTES AND REFERENCES
4	BAF	AUTOMATIC ALIGNED DECIMAL FIXED (5,0) 43,43,43,43,43,43,43,43,43,43,43,43,44,64,88,91
14	BAPA	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 88,89,114
52	BB	/* STATEMENT LABEL CONSTANT */
22	BRATIO	AUTOMATIC ALIGNED DECIMAL FIXED (6,0) 109,128
26	BVCOUNT	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 131,132
20	C	AUTOMATIC ALIGNED DECIMAL FIXED (5,2) 93,120
56	CC	/* STATEMENT LABEL CONSTANT */
24	CM	AUTOMATIC ALIGNED DECIMAL /* SINGLE */ FLOAT (6) 144,145
24	COST	AUTOMATIC ALIGNED DECIMAL /* SINGLE */ FLOAT (6) 145,147,150
12	COUNT	AUTOMATIC ALIGNED INITIAL DECIMAL FIXED (5,0) 1,45,67,67,85,86,87,94,96,96,96,100,101,104,110
21	COUNTQ	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 81,82
24	CTC	AUTOMATIC ALIGNED DECIMAL /* SINGLE */ FLOAT (6) 29,145
3	CUFT	/* IN TREE */ AUTOMATIC ALIGNED DECIMAL FIXED (5,2) 40,41
11	CUFT	AUTOMATIC ALIGNED DECIMAL FIXED (5,2) 63,65,66
25	CVTC	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 98,117,133
25	CVVBAR	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 101,117,132
24	CW	AUTOMATIC ALIGNED DECIMAL /* SINGLE */ FLOAT (6) 28,145
59	DD	/* STATEMENT LABEL CONSTANT */
11	DIAM	AUTOMATIC ALIGNED DECIMAL FIXED (5,2) 61,64,66
3	DIAM	/* IN TREE */ AUTOMATIC ALIGNED DECIMAL FIXED (4,1) 36,37

DCL NO.	IDENTIFIER	ATTRIBUTES AND REFERENCES
5	DIST	AUTOMATIC ALIGNED DECIMAL FIXED (8,1) 60,64,66,73
64	EE	/* STATEMENT LABEL CONSTANT */
********	FIXED	BUILTIN 111,126,127,147,150
138	GG	/* STATEMENT LABEL CONSTANT */
4	H	AUTOMATIC ALIGNED DECIMAL FIXED (5,0) 31,31,33,35,37,39,41
2	I	AUTOMATIC ALIGNED DECIMAL FIXED (8,1) 51,51,51,51,51,51,51,51,53,59,59,60
2	J	AUTOMATIC ALIGNED DECIMAL FIXED (8,1) 52,52,52,52,52,52,52,52,53,59,59,60
4	K	AUTOMATIC ALIGNED DECIMAL FIXED (5,0) 56,56,57,58,61,62,63
4	M	AUTOMATIC ALIGNED DECIMAL FIXED (5,0) 138,138,138,138,139,146,149
4	NPLOTS	AUTOMATIC ALIGNED DECIMAL FIXED (5,0) 30,87,91,91,91,93,94,94,94,98,99,103
24	NTC	AUTOMATIC ALIGNED DECIMAL /* SINGLE */ FLOAT (6) 106,108,126,140,143,145,145
4	NUM	AUTOMATIC ALIGNED DECIMAL FIXED (5,0) 55,70,70,81
24	NVBAR	AUTOMATIC ALIGNED DECIMAL /* SINGLE */ FLOAT (6) 107,108,127,129,141,145
27	PNTC	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 133,134,134,135,140
********	ROUND	BUILTIN 109,130,134
11	ROUNVBAR	AUTOMATIC ALIGNED DECIMAL FIXED (5,2) 129,130,130,131,136,141
23	SCOUNTQ	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 48,82,82,94
19	SE	AUTOMATIC ALIGNED DECIMAL FIXED (6,2) 91,92,118
17	SEP	AUTOMATIC ALIGNED DECIMAL FIXED (5,2) 92,93,119
21	SETCM	AUTOMATIC ALIGNED DECIMAL FIXED (8,2)

DCL NO.	IDENTIFIER	ATTRIBUTES AND REFERENCES
		94,95,99,121
21	SETCP	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 95,98,102,103,123
21	SETCVB	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 102,125
21	SEVBARM	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 96,97,100,122
21	SEVBARP	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 97,101,102,104,124
13	SMVBAR	AUTOMATIC ALIGNED INITIAL DECIMAL FIXED (10,2) 1,46,68,68,86,91,96,112
15	SPVBAR	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 54,69,69,77
18	SPVBARQ	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 77,78,79
25	STDETC	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 99,117
25	STDEVBR	AUTOMATIC ALIGNED DECIMAL FIXED (8,2) 100,117
23	SUMVBSQ	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 49,72,72,96
16	SVBARSQ	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 47,79,79,80,91
********	SYSIN	EXTERNAL FILE 32,34,36,38,40
********	SYSPRINT	EXTERNAL FILE PRINT 44,53,66,78,80,105,110,111,112,113,114,115,116,117,118,119,120,121,122,123, 124,125,126,127,128,135,136,137,147,150
26	TOTDIST	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 50,73,73,85
14	TOTVOL	AUTOMATIC ALIGNED DECIMAL FIXED (10,2) 90,116
3	TREE	AUTOMATIC /* STRUCTURE */
1	TREES	EXTERNAL ENTRY RETURNS(DECIMAL /* SINGLE */ FLOAT (6))
11	VBAR	AUTOMATIC ALIGNED DECIMAL FIXED (5,2) 65,66,68,69,71
21	VBARSQ	AUTOMATIC ALIGNED DECIMAL FIXED (8,2)

DCL NO.	IDENTIFIER	ATTRIBUTES AND REFERENCES
		71,72
24	WALK	AUTOMATIC ALIGNED DECIMAL /* SINGLE */ FLOAT (6) 143,145
2	XCO	AUTOMATIC ALIGNED DECIMAL FIXED (8,1) 32,33,57,59,59,60
2	YCO	AUTOMATIC ALIGNED DECIMAL FIXED (8,1) 34,35,58,59,59,60

AGGREGATE LENGTH TABLE

DCL NO.	IDENTIFIER	LVL	DIMS	OFFSET	ELEMENT LENGTH.	TOTAL LENGTH.
9	ARBA		1		3	4845
10	ARCUFT		1		3	4845
8	ARDIAM		1		3	4845
6	ARXCO		1		5	8075
7	ARYCO		1		5	8075
3	TREE	1			9	9
	DIAM	2			3	
	BA	2		3	3	
	CUFT	2		6	3	
				SUM OF CONSTANT LENGTHS		30694

STORAGE REQUIREMENTS

BLOCK, SECTION OR STATEMENT	TYPE	LENGTH	(HEX)	DSA SIZE	(HEX)
**TREES1	PROGRAM CSECT	9136	23B0		
**TREES2	STATIC CSECT	3104	C20		
TREES	PROCEDURE BLOCK	9134	23AE	31328	7A60

TABLES OF OFFSETS AND STATEMENT NUMBERS

WITHIN PROCEDURE TREES

OFFSET (HEX)	0	8C	94	9C	A2	A8	11E	13A	180	1CC	242	25E	2D4	2F0	366
STATEMENT NO.	1	28	29	30	31	32	33	34	35	36	37	38	39	40	41
OFFSET (HEX)	37E	38E	3A0	3E2	3E8	3EE	3F4	3FA	400	406	418	42A	490	496	49C
STATEMENT NO.	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
OFFSET (HEX)	4A2	4BE	4DA	532	5F6	61C	638	650	6F0	718	75A	760	766	76C	772
STATEMENT NO.	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71
OFFSET (HEX)	78A	790	7AC	7AC	7AC	7BC	808	85C	862	8B6	8D6	8DC	8E6	928	932
STATEMENT NO.	72	73	74	75	76	77	78	79	80	81	82	83	52	84	51
OFFSET (HEX)	974	998	9BC	A2E	A9A	AB8	AD6	C76	C82	D52	E72	ECA	104A	1086	112A
STATEMENT NO.	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99
OFFSET (HEX)	11CC	126E	1310	138C	145E	1500	1542	1574	15AE	15DE	15FC	1650	16D0	1724	1778
STATEMENT NO.	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114
OFFSET (HEX)	17CC	1820	1874	18B6	190A	195E	1982	1A06	1A5A	1AAE	1B02	1B56	1BD6	1C56	1CC0
STATEMENT NO.	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129
OFFSET (HEX)	1CF0	1D16	1D88	1E5E	1EF4	1F1A	1F6E	1FC2	2000	2012	201C	2046	206E	206E	2110
STATEMENT NO.	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144
OFFSET (HEX)	21A2	21D2	21DC	225C	225C	2266	22E6	22E6	22F0	230A	2314	2396			
STATEMENT NO.	145	146	147	148	149	150	151	152	138	153	43	154			

NO MESSAGES PRODUCED FOR THIS COMPILATION

COMPILE TIME 0.04 MINS SPILL FILE: 0 RECORDS, SIZE 4051

OS/360 LOADER

OPTIONS USED - PRINT,MAP,LET,CALL,NORES,NOTERM,SIZE=247808,NAME=**GO

NAME	TYPE	ADDR	NAME	TYPE	ADDR	NAME	TYPE	ADDR	NAME	TYPE	ADDR	NAME	TYPE	ADDR
PLISTART	SD	1DC810	**TREES1	SD	1DC858	**TREES2	SD	1DEC08	PLICALLA	LR	1DC816	PLICALLB	LR	1DC81A
PLIMAIN	SD	1DF828	IELCGIA	SD	1DF830	IELCGIB	SD	1DF8A0	TREES	LR	1DC860	SYSPINT	SD	1DF8E0
SYSIN	SD	1DF900	IBMBPIR1*	SD	1DF920	IBMBPIRA*	LR	1DF942	IBMBPIRB*	LR	1DF944	IBMBPIRC*	LR	1DF946
IBMBSIO1*	SD	1DFC10	IBMBSIOA*	LR	1DFC10	IBMBSIOB*	LR	1DFC12	IBMBSIOC*	LR	1DFC14	IBMBSIOD*	LR	1DFC16
IBMBSIOE*	LR	1DFC18	IBMBSIOT*	LR	1DFDCE	IBMBCAC1*	SD	1DFE70	IBMBCACA*	LR	1DFE70	IBMBCTO1*	SD	1E0158
IBMBCTHD*	LR	1E0158	IBMBCTHX*	LR	1E0160	IBMBCTHF*	LR	1E0168	IBMBCTHP*	LR	1E0170	IBMBCTHE*	LR	1E0178
IBMBCWO1*	SD	1E03F8	IBMBCWDH*	LR	1E03F8	IBMBCWZH*	LR	1E03F8	IBMBMYL1*	SD	1E05E8	IBMBMYLA*	LR	1E05E8
IBMBMYS1*	SD	1E0688	IBMBMYSA*	LR	1E0688	IBMBOCL1*	SD	1E0720	IBMBOCLA*	LR	1E0720	IBMBOCLB*	LR	1E0722
IBMBOCLC*	LR	1E0724	IBMBOCLD*	LR	1E0726	IBMBSDO1*	SD	1E0890	IBMBSDOD*	LR	1E0890	IBMBSDOC*	LR	1E0892
IBMBSDOB*	LR	1E0894	IBMBSDOA*	LR	1E0896	IBMBSDOT*	LR	1E0B66	IBMBSEI1*	SD	1E0E08	IBMBSEIA*	LR	1E0E08
IBMBSEIT*	LR	1E0FC2	IBMBSFI1*	SD	1E1018	IBMBSFIA*	LR	1E1018	IBMBSFIR*	LR	1E10D6	IBMBSII1*	SD	1E1108
IBMBSIIA*	LR	1E1108	IBMBSIIB*	LR	1E110A	IBMBSIIC*	LR	1E110C	IBMBSIID*	LR	1E110E	IBMBSIIT*	LR	1E1110
IBMBSLO1*	SD	1E1330	IBMBSLOA*	LR	1E1330	IBMBSLOB*	LR	1E1332	IBMBSPL1*	SD	1E1A10	IBMBSPLA*	LR	1E1A10
IBMBSPLB*	LR	1E1A12	IBMBSPLC*	LR	1E1A14	IBMBSXC1*	SD	1E1CE0	IBMBSXCA*	LR	1E1CE0	IBMBSXCB*	LR	1E1CE2
IBMBSXCC*	LR	1E1CE4	IBMBSXCD*	LR	1E1CE6	IBMBCKO1*	SD	1E1EF8	IBMBCKDP*	LR	1E1EF8	IBMBCKZP*	LR	1E1EF8
IBMBCKDD*	LR	1E1F00	IBMBCKZD*	LR	1E1F00	IBMBERR1*	SD	1E2078	IBMBERRA*	LR	1E2078	IBMBERRB*	LR	1E20BA
IBMBERRC*	LR	1E269C	IBMBEER1*	SD	1E2748	IBMBEERA*	LR	1E2748	IBMBSCV1*	SD	1E2750	IBMBSCVA*	LR	1E2750
IBMBMBL1*	SD	1E2990	IBMBMBLA*	LR	1E2990	IBMBMDL1*	SD	1E2B58	IBMBMDLC*	LR	1E2B58	IBMBMDLB*	LR	1E2B5A
IBMBMDLA*	LR	1E2B5E	IBMBMBS1*	SD	1E2CB0	IBMBMBSA*	LR	1E2CB0	IBMBMDS1*	SD	1E2DB0	IBMBMDSC*	LR	1E2DB0
IBMBMDSB*	LR	1E2DB2	IBMBMDSA*	LR	1E2DB6	IBMBEEF1*	SD	1E2EB8	IBMBEEFA*	LR	1E2EB8			

SYSIN	PR	00

TOTAL LENGTH 67F8
ENTRY ADDRESS 1DC810

BAF= 5;

SAMPLE POINT COORDINATES ARE 1075.0 1100.0

DIAM=	17.80	BA=	1.72	CUFT=	41.57	VBAR=	24.16	DIST=	57.6;
DIAM=	7.50	BA=	0.30	CUFT=	5.17	VBAR=	17.23	DIST=	19.7;
DIAM=	8.10	BA=	0.35	CUFT=	6.18	VBAR=	17.65	DIST=	18.3;
DIAM=	15.60	BA=	1.32	CUFT=	29.89	VBAR=	22.64	DIST=	44.1;
DIAM=	9.70	BA=	0.51	CUFT=	9.44	VBAR=	18.50	DIST=	34.3;
DIAM=	16.10	BA=	1.41	CUFT=	32.33	VBAR=	22.92	DIST=	43.3;
DIAM=	17.20	BA=	1.61	CUFT=	38.14	VBAR=	23.68	DIST=	22.8;
DIAM=	11.10	BA=	0.67	CUFT=	13.02	VBAR=	19.43	DIST=	37.4;
DIAM=	11.90	BA=	0.77	CUFT=	15.39	VBAR=	19.98	DIST=	42.6;
DIAM=	7.10	BA=	0.27	CUFT=	4.55	VBAR=	16.85	DIST=	22.8;
DIAM=	5.20	BA=	0.14	CUFT=	2.25	VBAR=	16.07	DIST=	5.5;
DIAM=	8.50	BA=	0.39	CUFT=	6.92	VBAR=	17.74	DIST=	32.8;
DIAM=	13.10	BA=	0.93	CUFT=	19.44	VBAR=	20.90	DIST=	50.7;
DIAM=	14.50	BA=	1.14	CUFT=	24.94	VBAR=	21.87	DIST=	26.5;
DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST=	46.9;
DIAM=	17.80	BA=	1.72	CUFT=	41.57	VBAR=	24.16	DIST=	65.8;
DIAM=	17.30	BA=	1.63	CUFT=	38.70	VBAR=	23.74	DIST=	65.0;
DIAM=	16.10	BA=	1.41	CUFT=	32.33	VBAR=	22.92	DIST=	62.0;
DIAM=	12.00	BA=	0.78	CUFT=	15.71	VBAR=	20.14	DIST=	35.4;
DIAM=	22.00	BA=	2.63	CUFT=	71.26	VBAR=	27.09	DIST=	10.7;
DIAM=	18.60	BA=	1.88	CUFT=	46.45	VBAR=	24.70	DIST=	57.5;
DIAM=	20.80	BA=	2.35	CUFT=	61.72	VBAR=	26.26	DIST=	56.1;
DIAM=	7.90	BA=	0.34	CUFT=	5.83	VBAR=	17.14	DIST=	10.7;
DIAM=	6.00	BA=	0.19	CUFT=	3.10	VBAR=	16.31	DIST=	23.3;
DIAM=	9.90	BA=	0.53	CUFT=	9.91	VBAR=	18.69	DIST=	35.9;
DIAM=	14.20	BA=	1.09	CUFT=	23.69	VBAR=	21.73	DIST=	33.9;

SUM VBAR SQUARED = 297897.63

RUNNING TOTAL VBAR SQUARED = 297897.63

SAMPLE POINT COORDINATES ARE 1075.0 1305.0

DIAM=	12.80	BA=	0.89	CUFT=	18.37	VBAR=	20.64	DIST=	43.4;
DIAM=	12.20	BA=	0.81	CUFT=	16.35	VBAR=	20.18	DIST=	41.3;
DIAM=	11.90	BA=	0.77	CUFT=	15.39	VBAR=	19.98	DIST=	42.0;
DIAM=	11.60	BA=	0.73	CUFT=	14.47	VBAR=	19.82	DIST=	23.6;
DIAM=	12.30	BA=	0.82	CUFT=	16.68	VBAR=	20.34	DIST=	22.2;
DIAM=	13.60	BA=	1.00	CUFT=	21.31	VBAR=	21.31	DIST=	26.7;
DIAM=	6.30	BA=	0.21	CUFT=	3.46	VBAR=	16.47	DIST=	22.1;
DIAM=	15.40	BA=	1.29	CUFT=	28.95	VBAR=	22.44	DIST=	53.0;
DIAM=	13.50	BA=	0.99	CUFT=	20.93	VBAR=	21.14	DIST=	23.4;
DIAM=	14.40	BA=	1.13	CUFT=	24.52	VBAR=	21.69	DIST=	39.0;
DIAM=	11.20	BA=	0.68	CUFT=	13.30	VBAR=	19.55	DIST=	39.2;
DIAM=	13.60	BA=	1.00	CUFT=	21.31	VBAR=	21.31	DIST=	51.6;
DIAM=	11.50	BA=	0.72	CUFT=	14.18	VBAR=	19.69	DIST=	40.2;
DIAM=	12.60	BA=	0.86	CUFT=	17.68	VBAR=	20.55	DIST=	38.0;
DIAM=	10.30	BA=	0.57	CUFT=	10.89	VBAR=	19.10	DIST=	30.5;
DIAM=	13.00	BA=	0.92	CUFT=	19.08	VBAR=	20.73	DIST=	35.3;

DIAM=	9.70	BA=	0.51	CUFT=	9.44	VBAR=	18.50	DIST=	20.7;		
DIAM=	16.90	BA=	1.55	CUFT=	36.50	VBAR=	23.54	DIST=	32.3;		
DIAM=	13.30	BA=	0.96	CUFT=	20.18	VBAR=	21.02	DIST=	13.7;		
DIAM=	9.70	BA=	0.51	CUFT=	9.44	VBAR=	18.50	DIST=	32.3;		
DIAM=	12.00	BA=	0.78	CUFT=	15.71	VBAR=	20.14	DIST=	4.4;		
DIAM=	13.60	BA=	1.00	CUFT=	21.31	VBAR=	21.31	DIST=	11.8;		
DIAM=	12.90	BA=	0.90	CUFT=	18.73	VBAR=	20.81	DIST=	26.4;		
DIAM=	9.00	BA=	0.44	CUFT=	7.91	VBAR=	17.97	DIST=	16.8;		
DIAM=	8.70	BA=	0.41	CUFT=	7.30	VBAR=	17.80	DIST=	25.3;		
DIAM=	8.40	BA=	0.38	CUFT=	6.73	VBAR=	17.71	DIST=	23.8;		
DIAM=	13.20	BA=	0.95	CUFT=	19.81	VBAR=	20.85	DIST=	37.3;		
DIAM=	16.00	BA=	1.39	CUFT=	31.83	VBAR=	22.89	DIST=	33.8;		
DIAM=	14.70	BA=	1.17	CUFT=	25.80	VBAR=	22.05	DIST=	54.8;		

SUM VBAR SQUARED = 345779.28

RUNNING TOTAL VBAR SQUARED = 643676.91

SAMPLE POINT COORDINATES ARE 1075.0 1510.0

DIAM=	10.60	BA=	0.61	CUFT=	11.66	VBAR=	19.11	DIST=	31.4;		
DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST=	38.3;		
DIAM=	5.90	BA=	0.18	CUFT=	2.98	VBAR=	16.55	DIST=	14.9;		
DIAM=	8.20	BA=	0.36	CUFT=	6.36	VBAR=	17.66	DIST=	8.6;		
DIAM=	15.30	BA=	1.27	CUFT=	28.49	VBAR=	22.43	DIST=	29.4;		
DIAM=	8.30	BA=	0.37	CUFT=	6.54	VBAR=	17.67	DIST=	19.9;		
DIAM=	9.10	BA=	0.45	CUFT=	8.12	VBAR=	18.04	DIST=	24.2;		
DIAM=	11.50	BA=	0.72	CUFT=	14.18	VBAR=	19.69	DIST=	29.3;		
DIAM=	15.90	BA=	1.37	CUFT=	31.34	VBAR=	22.87	DIST=	60.3;		
DIAM=	12.80	BA=	0.89	CUFT=	18.37	VBAR=	20.64	DIST=	43.4;		
DIAM=	11.30	BA=	0.69	CUFT=	13.59	VBAR=	19.69	DIST=	16.8;		
DIAM=	12.10	BA=	0.79	CUFT=	16.03	VBAR=	20.29	DIST=	35.8;		
DIAM=	8.80	BA=	0.42	CUFT=	7.50	VBAR=	17.85	DIST=	28.7;		
DIAM=	16.80	BA=	1.53	CUFT=	35.96	VBAR=	23.50	DIST=	35.8;		
DIAM=	13.80	BA=	1.03	CUFT=	22.08	VBAR=	21.43	DIST=	51.9;		
DIAM=	16.20	BA=	1.43	CUFT=	32.84	VBAR=	22.96	DIST=	51.1;		
DIAM=	14.30	BA=	1.11	CUFT=	24.10	VBAR=	21.71	DIST=	39.3;		
DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST=	28.7;		
DIAM=	9.30	BA=	0.47	CUFT=	8.54	VBAR=	18.17	DIST=	27.6;		

SUM VBAR SQUARED = 149660.65

RUNNING TOTAL VBAR SQUARED = 793337.56

SAMPLE POINT COORDINATES ARE 1075.0 1715.0

DIAM=	17.00	BA=	1.57	CUFT=	37.04	VBAR=	23.59	DIST=	42.2;		
DIAM=	14.00	BA=	1.06	CUFT=	22.88	VBAR=	21.58	DIST=	39.9;		
DIAM=	8.00	BA=	0.34	CUFT=	6.00	VBAR=	17.64	DIST=	27.5;		
DIAM=	8.70	BA=	0.41	CUFT=	7.30	VBAR=	17.80	DIST=	3.9;		
DIAM=	8.60	BA=	0.40	CUFT=	7.11	VBAR=	17.77	DIST=	19.7;		
DIAM=	9.40	BA=	0.48	CUFT=	8.76	VBAR=	18.25	DIST=	33.8;		
DIAM=	16.20	BA=	1.43	CUFT=	32.84	VBAR=	22.96	DIST=	36.2;		
DIAM=	13.80	BA=	1.03	CUFT=	22.08	VBAR=	21.43	DIST=	36.5;		
DIAM=	13.70	BA=	1.02	CUFT=	21.69	VBAR=	21.26	DIST=	30.4;		
DIAM=	11.90	BA=	0.77	CUFT=	15.39	VBAR=	19.98	DIST=	17.9;		
DIAM=	10.00	BA=	0.54	CUFT=	10.15	VBAR=	18.79	DIST=	23.2;		
DIAM=	8.70	BA=	0.41	CUFT=	7.30	VBAR=	17.80	DIST=	29.5;		
DIAM=	10.90	BA=	0.64	CUFT=	12.46	VBAR=	19.46	DIST=	17.0;		
DIAM=	10.70	BA=	0.62	CUFT=	11.92	VBAR=	19.22	DIST=	6.2;		
DIAM=	10.50	BA=	0.60	CUFT=	11.40	VBAR=	19.00	DIST=	38.8;		
DIAM=	10.70	BA=	0.62	CUFT=	11.92	VBAR=	19.22	DIST=	41.2;		

DIAM=	15.70	BA=	1.34	CUFT=	30.37	VBAR=	22.66	DIST=	39.0;
DIAM=	14.00	BA=	1.06	CUFT=	22.88	VBAR=	21.58	DIST=	38.8;
DIAM=	20.90	BA=	2.38	CUFT=	62.48	VBAR=	26.25	DIST=	42.9;
DIAM=	14.10	BA=	1.08	CUFT=	23.28	VBAR=	21.55	DIST=	39.4;
DIAM=	17.70	BA=	1.70	CUFT=	40.99	VBAR=	24.11	DIST=	50.6;
DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST=	16.1;
DIAM=	9.60	BA=	0.50	CUFT=	9.21	VBAR=	18.42	DIST=	23.9;

SUM VBAR SQUARED = 224315.90

RUNNING TOTAL VBAR SQUARED = 1017653.46

SAMPLE POINT COORDINATES ARE 1212.0 1100.0

DIAM=	9.20	BA=	0.46	CUFT=	8.33	VBAR=	18.10	DIST=	19.9;
DIAM=	14.40	BA=	1.13	CUFT=	24.52	VBAR=	21.69	DIST=	53.4;
DIAM=	11.50	BA=	0.72	CUFT=	14.18	VBAR=	19.69	DIST=	31.8;
DIAM=	6.70	BA=	0.24	CUFT=	3.99	VBAR=	16.62	DIST=	5.8;
DIAM=	13.80	BA=	1.03	CUFT=	22.08	VBAR=	21.43	DIST=	12.7;
DIAM=	10.70	BA=	0.62	CUFT=	11.92	VBAR=	19.22	DIST=	22.3;
DIAM=	11.20	BA=	0.68	CUFT=	13.30	VBAR=	19.55	DIST=	42.7;
DIAM=	16.00	BA=	1.39	CUFT=	31.83	VBAR=	22.89	DIST=	50.6;
DIAM=	18.00	BA=	1.76	CUFT=	42.76	VBAR=	24.29	DIST=	56.2;
DIAM=	11.80	BA=	0.75	CUFT=	15.08	VBAR=	20.10	DIST=	42.9;
DIAM=	6.10	BA=	0.20	CUFT=	3.22	VBAR=	16.10	DIST=	19.1;
DIAM=	9.40	BA=	0.48	CUFT=	8.76	VBAR=	18.25	DIST=	25.7;
DIAM=	14.80	BA=	1.19	CUFT=	26.24	VBAR=	22.05	DIST=	39.7;
DIAM=	8.10	BA=	0.35	CUFT=	6.18	VBAR=	17.65	DIST=	13.4;
DIAM=	10.30	BA=	0.57	CUFT=	10.89	VBAR=	19.10	DIST=	19.3;
DIAM=	14.80	BA=	1.19	CUFT=	26.24	VBAR=	22.05	DIST=	20.0;
DIAM=	13.60	BA=	1.00	CUFT=	21.31	VBAR=	21.31	DIST=	43.3;
DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST=	40.2;
DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST=	19.4;
DIAM=	11.80	BA=	0.75	CUFT=	15.08	VBAR=	20.10	DIST=	45.8;
DIAM=	18.20	BA=	1.80	CUFT=	43.97	VBAR=	24.42	DIST=	41.9;
DIAM=	14.20	BA=	1.09	CUFT=	23.69	VBAR=	21.73	DIST=	31.7;

SUM VBAR SQUARED = 205154.64

RUNNING TOTAL VBAR SQUARED = 1222808.10

SAMPLE POINT COORDINATES ARE 1212.0 1305.0

DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST=	60.0;
DIAM=	12.00	BA=	0.78	CUFT=	15.71	VBAR=	20.14	DIST=	24.7;
DIAM=	10.20	BA=	0.56	CUFT=	10.64	VBAR=	19.00	DIST=	34.7;
DIAM=	19.80	BA=	2.13	CUFT=	54.43	VBAR=	25.55	DIST=	27.4;
DIAM=	14.20	BA=	1.09	CUFT=	23.69	VBAR=	21.73	DIST=	10.3;
DIAM=	16.00	BA=	1.39	CUFT=	31.83	VBAR=	22.89	DIST=	46.0;
DIAM=	17.10	BA=	1.59	CUFT=	37.59	VBAR=	23.64	DIST=	49.6;
DIAM=	15.60	BA=	1.32	CUFT=	29.89	VBAR=	22.64	DIST=	40.1;
DIAM=	19.00	BA=	1.96	CUFT=	49.02	VBAR=	25.01	DIST=	56.6;
DIAM=	13.30	BA=	0.96	CUFT=	20.18	VBAR=	21.02	DIST=	15.6;
DIAM=	17.70	BA=	1.70	CUFT=	40.99	VBAR=	24.11	DIST=	32.3;
DIAM=	14.00	BA=	1.06	CUFT=	22.88	VBAR=	21.58	DIST=	38.6;
DIAM=	9.70	BA=	0.51	CUFT=	9.44	VBAR=	18.50	DIST=	15.4;
DIAM=	15.70	BA=	1.34	CUFT=	30.37	VBAR=	22.66	DIST=	54.2;
DIAM=	14.70	BA=	1.17	CUFT=	25.80	VBAR=	22.05	DIST=	31.6;
DIAM=	9.50	BA=	0.49	CUFT=	8.98	VBAR=	18.32	DIST=	20.4;
DIAM=	8.90	BA=	0.43	CUFT=	7.70	VBAR=	17.90	DIST=	25.1;
DIAM=	7.20	BA=	0.28	CUFT=	4.70	VBAR=	16.78	DIST=	26.2;

SUM VBAR SQUARED = 149629.71

RUNNING TOTAL VBAR SQUARED = 1372437.81

SAMPLE POINT COORDINATES ARE 1212.0 1510.0

DIAM=	9.10	BA=	0.45	CUFT=	8.12	VBAR=	18.04	DIST= 30.9;
DIAM=	15.00	BA=	1.22	CUFT=	27.12	VBAR=	22.22	DIST= 35.2;
DIAM=	15.40	BA=	1.29	CUFT=	28.95	VBAR=	22.44	DIST= 47.2;
DIAM=	12.90	BA=	0.90	CUFT=	18.73	VBAR=	20.81	DIST= 3.1;
DIAM=	12.70	BA=	0.87	CUFT=	18.03	VBAR=	20.72	DIST= 15.0;
DIAM=	13.20	BA=	0.95	CUFT=	19.81	VBAR=	20.85	DIST= 37.0;
DIAM=	14.90	BA=	1.21	CUFT=	26.68	VBAR=	22.04	DIST= 41.2;
DIAM=	15.10	BA=	1.24	CUFT=	27.57	VBAR=	22.23	DIST= 42.9;
DIAM=	16.00	BA=	1.39	CUFT=	31.83	VBAR=	22.89	DIST= 40.6;
DIAM=	9.60	BA=	0.50	CUFT=	9.21	VBAR=	18.42	DIST= 29.1;
DIAM=	13.00	BA=	0.92	CUFT=	19.08	VBAR=	20.73	DIST= 50.0;
DIAM=	18.00	BA=	1.76	CUFT=	42.76	VBAR=	24.29	DIST= 63.6;

SUM VBAR SQUARED = 65372.26

RUNNING TOTAL VBAR SQUARED = 1437810.07

SAMPLE POINT COORDINATES ARE 1212.0 1715.0

DIAM=	5.30	BA=	0.15	CUFT=	2.34	VBAR=	15.60	DIST= 5.4;
DIAM=	10.00	BA=	0.54	CUFT=	10.15	VBAR=	18.79	DIST= 37.5;
DIAM=	8.30	BA=	0.37	CUFT=	6.54	VBAR=	17.67	DIST= 28.8;
DIAM=	11.80	BA=	0.75	CUFT=	15.08	VBAR=	20.10	DIST= 20.3;
DIAM=	6.60	BA=	0.23	CUFT=	3.85	VBAR=	16.73	DIST= 19.9;
DIAM=	8.50	BA=	0.39	CUFT=	6.92	VBAR=	17.74	DIST= 14.6;
DIAM=	15.70	BA=	1.34	CUFT=	30.37	VBAR=	22.66	DIST= 57.4;
DIAM=	15.00	BA=	1.22	CUFT=	27.12	VBAR=	22.22	DIST= 37.0;
DIAM=	13.80	BA=	1.03	CUFT=	22.08	VBAR=	21.43	DIST= 25.9;
DIAM=	9.30	BA=	0.47	CUFT=	8.54	VBAR=	18.17	DIST= 27.7;
DIAM=	14.10	BA=	1.08	CUFT=	23.28	VBAR=	21.55	DIST= 9.2;
DIAM=	16.40	BA=	1.46	CUFT=	33.86	VBAR=	23.19	DIST= 46.0;
DIAM=	15.30	BA=	1.27	CUFT=	28.49	VBAR=	22.43	DIST= 50.7;
DIAM=	19.10	BA=	1.98	CUFT=	49.68	VBAR=	25.09	DIST= 52.2;
DIAM=	16.50	BA=	1.48	CUFT=	34.37	VBAR=	23.22	DIST= 54.8;
DIAM=	9.80	BA=	0.52	CUFT=	9.67	VBAR=	18.59	DIST= 33.5;
DIAM=	11.60	BA=	0.73	CUFT=	14.47	VBAR=	19.82	DIST= 20.1;

SUM VBAR SQUARED = 119025.00

RUNNING TOTAL VBAR SQUARED = 1556835.07

SAMPLE POINT COORDINATES ARE 1349.0 1100.0

DIAM=	14.60	BA=	1.16	CUFT=	25.37	VBAR=	21.87	DIST= 19.1;
DIAM=	14.90	BA=	1.21	CUFT=	26.68	VBAR=	22.04	DIST= 56.2;
DIAM=	13.30	BA=	0.96	CUFT=	20.18	VBAR=	21.02	DIST= 36.5;
DIAM=	11.00	BA=	0.65	CUFT=	12.74	VBAR=	19.60	DIST= 37.2;
DIAM=	15.00	BA=	1.22	CUFT=	27.12	VBAR=	22.22	DIST= 16.2;
DIAM=	12.90	BA=	0.90	CUFT=	18.73	VBAR=	20.81	DIST= 5.2;
DIAM=	12.30	BA=	0.82	CUFT=	16.68	VBAR=	20.34	DIST= 42.2;
DIAM=	8.10	BA=	0.35	CUFT=	6.18	VBAR=	17.65	DIST= 19.1;
DIAM=	15.30	BA=	1.27	CUFT=	28.49	VBAR=	22.43	DIST= 20.4;
DIAM=	6.40	BA=	0.22	CUFT=	3.59	VBAR=	16.31	DIST= 24.0;
DIAM=	10.00	BA=	0.54	CUFT=	10.15	VBAR=	18.79	DIST= 35.0;
DIAM=	16.20	BA=	1.43	CUFT=	32.84	VBAR=	22.96	DIST= 56.1;
DIAM=	16.10	BA=	1.41	CUFT=	32.33	VBAR=	22.92	DIST= 47.1;
DIAM=	15.40	BA=	1.29	CUFT=	28.95	VBAR=	22.44	DIST= 59.4;

DIAM= 12.60 BA= 0.86 CUFT= 17.68 VBAR= 20.55 DIST= 43.2;
DIAM= 15.10 BA= 1.24 CUFT= 27.57 VBAR= 22.23 DIST= 55.6;
DIAM= 13.60 BA= 1.00 CUFT= 21.31 VBAR= 21.31 DIST= 40.7;
DIAM= 18.20 BA= 1.80 CUFT= 43.97 VBAR= 24.42 DIST= 40.6;

SUM VBAR SQUARED = 144331.60

RUNNING TOTAL VBAR SQUARED = 1701166.67

SAMPLE POINT COORDINATES ARE 1349.0 1305.0

DIAM= 17.80 BA= 1.72 CUFT= 41.57 VBAR= 24.16 DIST= 32.8;
DIAM= 10.20 BA= 0.56 CUFT= 10.64 VBAR= 19.00 DIST= 36.4;
DIAM= 10.30 BA= 0.57 CUFT= 10.89 VBAR= 19.10 DIST= 28.4;
DIAM= 10.80 BA= 0.63 CUFT= 12.19 VBAR= 19.34 DIST= 41.4;
DIAM= 10.60 BA= 0.61 CUFT= 11.66 VBAR= 19.11 DIST= 13.9;
DIAM= 16.10 BA= 1.41 CUFT= 32.33 VBAR= 22.92 DIST= 51.1;
DIAM= 17.70 BA= 1.70 CUFT= 40.99 VBAR= 24.11 DIST= 57.9;
DIAM= 21.90 BA= 2.61 CUFT= 70.43 VBAR= 26.98 DIST= 75.4;
DIAM= 11.30 BA= 0.69 CUFT= 13.59 VBAR= 19.69 DIST= 42.0;
DIAM= 14.40 BA= 1.13 CUFT= 24.52 VBAR= 21.69 DIST= 36.1;
DIAM= 12.70 BA= 0.87 CUFT= 18.03 VBAR= 20.72 DIST= 18.7;
DIAM= 15.00 BA= 1.22 CUFT= 27.12 VBAR= 22.22 DIST= 41.5;
DIAM= 19.80 BA= 2.13 CUFT= 54.43 VBAR= 25.55 DIST= 12.0;
DIAM= 7.70 BA= 0.32 CUFT= 5.49 VBAR= 17.15 DIST= 14.8;
DIAM= 8.30 BA= 0.37 CUFT= 6.54 VBAR= 17.67 DIST= 25.5;
DIAM= 10.50 BA= 0.60 CUFT= 11.40 VBAR= 19.00 DIST= 23.9;
DIAM= 9.20 BA= 0.46 CUFT= 8.33 VBAR= 18.10 DIST= 15.6;
DIAM= 11.70 BA= 0.74 CUFT= 14.78 VBAR= 19.97 DIST= 12.6;
DIAM= 7.40 BA= 0.29 CUFT= 5.01 VBAR= 17.27 DIST= 19.4;
DIAM= 6.10 BA= 0.20 CUFT= 3.22 VBAR= 16.10 DIST= 16.0;
DIAM= 13.30 BA= 0.96 CUFT= 20.18 VBAR= 21.02 DIST= 38.3;
DIAM= 17.00 BA= 1.57 CUFT= 37.04 VBAR= 23.59 DIST= 47.5;
DIAM= 8.90 BA= 0.43 CUFT= 7.70 VBAR= 17.90 DIST= 32.4;
DIAM= 17.10 BA= 1.59 CUFT= 37.59 VBAR= 23.64 DIST= 52.6;
DIAM= 16.00 BA= 1.39 CUFT= 31.83 VBAR= 22.89 DIST= 53.3;
DIAM= 15.40 BA= 1.29 CUFT= 28.95 VBAR= 22.44 DIST= 54.8;

SUM VBAR SQUARED = 293038.16

RUNNING TOTAL VBAR SQUARED = 1994204.83

SAMPLE POINT COORDINATES ARE 1349.0 1510.0

DIAM= 16.20 BA= 1.43 CUFT= 32.84 VBAR= 22.96 DIST= 57.5;
DIAM= 8.20 BA= 0.36 CUFT= 6.36 VBAR= 17.66 DIST= 20.8;
DIAM= 18.00 BA= 1.76 CUFT= 42.76 VBAR= 24.29 DIST= 65.4;
DIAM= 11.80 BA= 0.75 CUFT= 15.08 VBAR= 20.10 DIST= 42.1;
DIAM= 19.00 BA= 1.96 CUFT= 49.02 VBAR= 25.01 DIST= 32.5;
DIAM= 6.40 BA= 0.22 CUFT= 3.59 VBAR= 16.31 DIST= 18.1;
DIAM= 8.80 BA= 0.42 CUFT= 7.50 VBAR= 17.85 DIST= 21.7;
DIAM= 6.10 BA= 0.20 CUFT= 3.22 VBAR= 16.10 DIST= 8.0;
DIAM= 13.90 BA= 1.05 CUFT= 22.48 VBAR= 21.40 DIST= 53.1;
DIAM= 5.70 BA= 0.17 CUFT= 2.76 VBAR= 16.23 DIST= 10.6;
DIAM= 5.10 BA= 0.14 CUFT= 2.15 VBAR= 15.35 DIST= 16.4;
DIAM= 6.10 BA= 0.20 CUFT= 3.22 VBAR= 16.10 DIST= 22.9;
DIAM= 8.90 BA= 0.43 CUFT= 7.70 VBAR= 17.90 DIST= 18.8;
DIAM= 12.90 BA= 0.90 CUFT= 18.73 VBAR= 20.81 DIST= 30.6;
DIAM= 5.30 BA= 0.15 CUFT= 2.34 VBAR= 15.60 DIST= 19.8;
DIAM= 10.90 BA= 0.64 CUFT= 12.46 VBAR= 19.46 DIST= 23.4;
DIAM= 13.20 BA= 0.95 CUFT= 19.81 VBAR= 20.85 DIST= 26.0;
DIAM= 10.20 BA= 0.56 CUFT= 10.64 VBAR= 19.00 DIST= 25.9;

DIAM=	15.30	BA=	1.27	CUFT=	28.49	VBAR=	22.43	DIST=	55.0;
DIAM=	10.40	BA=	0.58	CUFT=	11.14	VBAR=	19.20	DIST=	39.5;
DIAM=	11.30	BA=	0.69	CUFT=	13.59	VBAR=	19.69	DIST=	43.6;
DIAM=	13.50	BA=	0.99	CUFT=	20.93	VBAR=	21.14	DIST=	44.2;
DIAM=	15.40	BA=	1.29	CUFT=	28.95	VBAR=	22.44	DIST=	50.3;
DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST=	50.2;
DIAM=	15.50	BA=	1.31	CUFT=	29.42	VBAR=	22.45	DIST=	16.9;

SUM VBAR SQUARED = 243670.57

RUNNING TOTAL VBAR SQUARED = 2237875.40

SAMPLE POINT COORDINATES ARE 1349.0 1715.0

DIAM=	9.10	BA=	0.45	CUFT=	8.12	VBAR=	18.04	DIST=	33.2;
DIAM=	5.70	BA=	0.17	CUFT=	2.76	VBAR=	16.23	DIST=	14.1;
DIAM=	5.90	BA=	0.18	CUFT=	2.98	VBAR=	16.55	DIST=	8.0;
DIAM=	17.00	BA=	1.57	CUFT=	37.04	VBAR=	23.59	DIST=	59.8;
DIAM=	14.90	BA=	1.21	CUFT=	26.68	VBAR=	22.04	DIST=	50.7;
DIAM=	6.40	BA=	0.22	CUFT=	3.59	VBAR=	16.31	DIST=	21.6;
DIAM=	8.00	BA=	0.34	CUFT=	6.00	VBAR=	17.64	DIST=	28.9;
DIAM=	12.20	BA=	0.81	CUFT=	16.35	VBAR=	20.18	DIST=	24.7;
DIAM=	9.90	BA=	0.53	CUFT=	9.91	VBAR=	18.69	DIST=	18.8;
DIAM=	10.50	BA=	0.60	CUFT=	11.40	VBAR=	19.00	DIST=	26.3;
DIAM=	7.30	BA=	0.29	CUFT=	4.86	VBAR=	16.75	DIST=	17.4;
DIAM=	6.30	BA=	0.21	CUFT=	3.46	VBAR=	16.47	DIST=	9.6;
DIAM=	6.50	BA=	0.23	CUFT=	3.72	VBAR=	16.17	DIST=	21.9;
DIAM=	17.00	BA=	1.57	CUFT=	37.04	VBAR=	23.59	DIST=	45.4;
DIAM=	10.40	BA=	0.58	CUFT=	11.14	VBAR=	19.20	DIST=	20.3;
DIAM=	6.70	BA=	0.24	CUFT=	3.99	VBAR=	16.62	DIST=	8.9;

SUM VBAR SQUARED = 88250.58

RUNNING TOTAL VBAR SQUARED = 2326125.98

SAMPLE POINT COORDINATES ARE 1485.0 1100.0

DIAM=	13.30	BA=	0.96	CUFT=	20.18	VBAR=	21.02	DIST=	37.5;
DIAM=	13.60	BA=	1.00	CUFT=	21.31	VBAR=	21.31	DIST=	36.0;
DIAM=	13.70	BA=	1.02	CUFT=	21.69	VBAR=	21.26	DIST=	22.9;
DIAM=	6.70	BA=	0.24	CUFT=	3.99	VBAR=	16.62	DIST=	24.9;
DIAM=	17.00	BA=	1.57	CUFT=	37.04	VBAR=	23.59	DIST=	31.3;
DIAM=	13.10	BA=	0.93	CUFT=	19.44	VBAR=	20.90	DIST=	43.2;
DIAM=	17.70	BA=	1.70	CUFT=	40.99	VBAR=	24.11	DIST=	63.3;
DIAM=	16.20	BA=	1.43	CUFT=	32.84	VBAR=	22.96	DIST=	44.0;
DIAM=	13.90	BA=	1.05	CUFT=	22.48	VBAR=	21.40	DIST=	26.4;
DIAM=	15.70	BA=	1.34	CUFT=	30.37	VBAR=	22.66	DIST=	15.8;
DIAM=	5.60	BA=	0.17	CUFT=	2.65	VBAR=	15.58	DIST=	10.8;
DIAM=	5.70	BA=	0.17	CUFT=	2.76	VBAR=	16.23	DIST=	20.1;
DIAM=	10.60	BA=	0.61	CUFT=	11.66	VBAR=	19.11	DIST=	13.0;
DIAM=	9.80	BA=	0.52	CUFT=	9.67	VBAR=	18.59	DIST=	23.7;
DIAM=	17.40	BA=	1.65	CUFT=	39.27	VBAR=	23.80	DIST=	6.2;
DIAM=	10.00	BA=	0.54	CUFT=	10.15	VBAR=	18.79	DIST=	37.7;
DIAM=	13.10	BA=	0.93	CUFT=	19.44	VBAR=	20.90	DIST=	9.5;
DIAM=	10.00	BA=	0.54	CUFT=	10.15	VBAR=	18.79	DIST=	17.2;
DIAM=	11.50	BA=	0.72	CUFT=	14.18	VBAR=	19.69	DIST=	44.0;
DIAM=	14.90	BA=	1.21	CUFT=	26.68	VBAR=	22.04	DIST=	48.3;
DIAM=	11.20	BA=	0.68	CUFT=	13.30	VBAR=	19.55	DIST=	43.1;
DIAM=	22.00	BA=	2.63	CUFT=	71.26	VBAR=	27.09	DIST=	51.8;
DIAM=	14.60	BA=	1.16	CUFT=	25.37	VBAR=	21.87	DIST=	40.6;

SUM VBAR SQUARED = 228350.17

RUNNING TOTAL VBAR SQUARED = 2554476.15

SAMPLE POINT COORDINATES ARE 1485.0 1305.0

DIAM=	17.20	BA=	1.61	CUFT=	38.14	VBAR=	23.68	DIST= 33.6;
DIAM=	19.10	BA=	1.98	CUFT=	49.68	VBAR=	25.09	DIST= 42.0;
DIAM=	6.30	BA=	0.21	CUFT=	3.46	VBAR=	16.47	DIST= 13.8;
DIAM=	11.10	BA=	0.67	CUFT=	13.02	VBAR=	19.43	DIST= 26.8;
DIAM=	6.70	BA=	0.24	CUFT=	3.99	VBAR=	16.62	DIST= 15.9;
DIAM=	9.60	BA=	0.50	CUFT=	9.21	VBAR=	18.42	DIST= 32.7;
DIAM=	21.90	BA=	2.61	CUFT=	70.43	VBAR=	26.98	DIST= 67.1;
DIAM=	9.70	BA=	0.51	CUFT=	9.44	VBAR=	18.50	DIST= 21.9;
DIAM=	8.50	BA=	0.39	CUFT=	6.92	VBAR=	17.74	DIST= 23.8;
DIAM=	15.30	BA=	1.27	CUFT=	28.49	VBAR=	22.43	DIST= 12.9;
DIAM=	15.40	BA=	1.29	CUFT=	28.95	VBAR=	22.44	DIST= 14.4;
DIAM=	13.00	BA=	0.92	CUFT=	19.08	VBAR=	20.73	DIST= 35.9;
DIAM=	15.60	BA=	1.32	CUFT=	29.89	VBAR=	22.64	DIST= 56.1;
DIAM=	13.90	BA=	1.05	CUFT=	22.48	VBAR=	21.40	DIST= 24.2;
DIAM=	20.30	BA=	2.24	CUFT=	58.00	VBAR=	25.89	DIST= 72.5;

SUM VBAR SQUARED = 101416.77

RUNNING TOTAL VBAR SQUARED = 2655892.92

SAMPLE POINT COORDINATES ARE 1485.0 1510.0

DIAM=	14.00	BA=	1.06	CUFT=	22.88	VBAR=	21.58	DIST= 30.6;
DIAM=	10.30	BA=	0.57	CUFT=	10.89	VBAR=	19.10	DIST= 1.4;
DIAM=	11.30	BA=	0.69	CUFT=	13.59	VBAR=	19.69	DIST= 23.0;
DIAM=	10.00	BA=	0.54	CUFT=	10.15	VBAR=	18.79	DIST= 21.1;
DIAM=	15.70	BA=	1.34	CUFT=	30.37	VBAR=	22.66	DIST= 56.0;
DIAM=	13.40	BA=	0.97	CUFT=	20.55	VBAR=	21.18	DIST= 39.1;
DIAM=	11.60	BA=	0.73	CUFT=	14.47	VBAR=	19.82	DIST= 35.0;
DIAM=	11.20	BA=	0.68	CUFT=	13.30	VBAR=	19.55	DIST= 38.0;
DIAM=	17.60	BA=	1.68	CUFT=	40.41	VBAR=	24.05	DIST= 18.7;
DIAM=	9.70	BA=	0.51	CUFT=	9.44	VBAR=	18.50	DIST= 29.4;
DIAM=	13.20	BA=	0.95	CUFT=	19.81	VBAR=	20.85	DIST= 32.2;
DIAM=	13.20	BA=	0.95	CUFT=	19.81	VBAR=	20.85	DIST= 49.4;
DIAM=	10.80	BA=	0.63	CUFT=	12.19	VBAR=	19.34	DIST= 12.6;

SUM VBAR SQUARED = 70734.72

RUNNING TOTAL VBAR SQUARED = 2726627.64

SAMPLE POINT COORDINATES ARE 1485.0 1715.0

DIAM=	14.70	BA=	1.17	CUFT=	25.80	VBAR=	22.05	DIST= 52.7;
DIAM=	5.30	BA=	0.15	CUFT=	2.34	VBAR=	15.60	DIST= 14.3;
DIAM=	9.20	BA=	0.46	CUFT=	8.33	VBAR=	18.10	DIST= 28.5;
DIAM=	13.60	BA=	1.00	CUFT=	21.31	VBAR=	21.31	DIST= 44.4;
DIAM=	11.30	BA=	0.69	CUFT=	13.59	VBAR=	19.69	DIST= 37.9;
DIAM=	8.70	BA=	0.41	CUFT=	7.30	VBAR=	17.80	DIST= 16.7;
DIAM=	16.90	BA=	1.55	CUFT=	36.50	VBAR=	23.54	DIST= 28.5;
DIAM=	20.80	BA=	2.35	CUFT=	61.72	VBAR=	26.26	DIST= 47.9;
DIAM=	7.00	BA=	0.26	CUFT=	4.41	VBAR=	16.96	DIST= 10.8;
DIAM=	10.90	BA=	0.64	CUFT=	12.46	VBAR=	19.46	DIST= 10.6;
DIAM=	6.80	BA=	0.25	CUFT=	4.12	VBAR=	16.48	DIST= 19.9;
DIAM=	6.10	BA=	0.20	CUFT=	3.22	VBAR=	16.10	DIST= 21.8;
DIAM=	6.20	BA=	0.20	CUFT=	3.34	VBAR=	16.70	DIST= 23.3;
DIAM=	13.50	BA=	0.99	CUFT=	20.93	VBAR=	21.14	DIST= 21.6;
DIAM=	11.90	BA=	0.77	CUFT=	15.39	VBAR=	19.98	DIST= 41.9;
DIAM=	12.30	BA=	0.82	CUFT=	16.68	VBAR=	20.34	DIST= 33.9;

SUM VBAR SQUARED = 97038.48

RUNNING TOTAL VBAR SQUARED = 2823666.12

A= 25.52 B= 12.12;

TOTAL NUMBER OF TREES SAMPLED = 318

AVERAGE TREE COUNT = 19.87

SUM VBAR = 6520.48

AVERAGE VBAR= 20.50

BASAL AREA PER ACRE = 99.37

AVERAGE VOLUME PER ACRE = 2037.08

TOTAL VOLUME IN CUBIC FEET = 23569.01

CVTC= 25.52 STDETC= 5.07 STDEVBR= 2.49 CVVBAR= 12.12;

STANDARD ERROR = 131.64

SAMPLING ERROR % = 6.46

COEFF. OF VARIATION % = 25.83

STANDARD ERROR OF MEAN TREE COUNT = 1.27

STANDARD ERROR OF MEAN VBAR = 0.14

SAMPLING ERROR OF TREE COUNT % = 6.38

SAMPLING ERROR OF VBAR % = 0.68

COMBINED SAMPLING ERROR TC & VBAR % = 6.41

OPTIMUM NUMBER OF TREE COUNT POINTS = 13.02

OPTIMUM NUMBER MEASUREMENT POINTS = 0.14

RATIO OF TREE COUNT POINTS TO MEASUREMENT POINTS IS 88 TO 1

PRACTICAL NUMBER OF TREE COUNT POINTS IS 8.00

PRACTICAL NUMBER OF MEASUREMENT POINTS IS 1.00

COST FOR COMBINED SAMPLING ERROR OF 10%

OPTIMUM COST = 26.69

PRACTICAL COST = 24.38

BAF= 10;

SAMPLE POINT COORDINATES ARE 1075.0 1100.0

DIAM=	7.50	BA=	0.30	CUFT=	5.17	VBAR=	17.23	DIST=	19.7;
DIAM=	8.10	BA=	0.35	CUFT=	6.18	VBAR=	17.65	DIST=	18.3;
DIAM=	16.10	BA=	1.41	CUFT=	32.33	VBAR=	22.92	DIST=	43.3;
DIAM=	17.20	BA=	1.61	CUFT=	38.14	VBAR=	23.68	DIST=	22.8;
DIAM=	5.20	BA=	0.14	CUFT=	2.25	VBAR=	16.07	DIST=	5.5;
DIAM=	14.50	BA=	1.14	CUFT=	24.94	VBAR=	21.87	DIST=	26.5;
DIAM=	22.00	BA=	2.63	CUFT=	71.26	VBAR=	27.09	DIST=	10.7;
DIAM=	20.80	BA=	2.35	CUFT=	61.72	VBAR=	26.26	DIST=	56.1;
DIAM=	7.90	BA=	0.34	CUFT=	5.83	VBAR=	17.14	DIST=	10.7;
DIAM=	14.20	BA=	1.09	CUFT=	23.69	VBAR=	21.73	DIST=	33.9;

SUM VBAR SQUARED = 44791.48

RUNNING TOTAL VBAR SQUARED = 44791.48

SAMPLE POINT COORDINATES ARE 1075.0 1305.0

DIAM=	11.60	BA=	0.73	CUFT=	14.47	VBAR=	19.82	DIST=	23.6;
DIAM=	12.30	BA=	0.82	CUFT=	16.68	VBAR=	20.34	DIST=	22.2;
DIAM=	13.60	BA=	1.00	CUFT=	21.31	VBAR=	21.31	DIST=	26.7;
DIAM=	13.50	BA=	0.99	CUFT=	20.93	VBAR=	21.14	DIST=	23.4;
DIAM=	14.40	BA=	1.13	CUFT=	24.52	VBAR=	21.69	DIST=	39.0;
DIAM=	13.00	BA=	0.92	CUFT=	19.08	VBAR=	20.73	DIST=	35.3;
DIAM=	9.70	BA=	0.51	CUFT=	9.44	VBAR=	18.50	DIST=	20.7;
DIAM=	16.90	BA=	1.55	CUFT=	36.50	VBAR=	23.54	DIST=	32.3;
DIAM=	13.30	BA=	0.96	CUFT=	20.18	VBAR=	21.02	DIST=	13.7;
DIAM=	12.00	BA=	0.78	CUFT=	15.71	VBAR=	20.14	DIST=	4.4;
DIAM=	13.60	BA=	1.00	CUFT=	21.31	VBAR=	21.31	DIST=	11.8;
DIAM=	12.90	BA=	0.90	CUFT=	18.73	VBAR=	20.81	DIST=	26.4;
DIAM=	9.00	BA=	0.44	CUFT=	7.91	VBAR=	17.97	DIST=	16.8;
DIAM=	16.00	BA=	1.39	CUFT=	31.83	VBAR=	22.89	DIST=	33.8;

SUM VBAR SQUARED = 84803.26

RUNNING TOTAL VBAR SQUARED = 129594.74

SAMPLE POINT COORDINATES ARE 1075.0 1510.0

DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST=	38.3;
DIAM=	5.90	BA=	0.18	CUFT=	2.98	VBAR=	16.55	DIST=	14.9;
DIAM=	8.20	BA=	0.36	CUFT=	6.36	VBAR=	17.66	DIST=	8.6;
DIAM=	15.30	BA=	1.27	CUFT=	28.49	VBAR=	22.43	DIST=	29.4;
DIAM=	8.30	BA=	0.37	CUFT=	6.54	VBAR=	17.67	DIST=	19.9;
DIAM=	9.10	BA=	0.45	CUFT=	8.12	VBAR=	18.04	DIST=	24.2;
DIAM=	11.50	BA=	0.72	CUFT=	14.18	VBAR=	19.69	DIST=	29.3;
DIAM=	11.30	BA=	0.69	CUFT=	13.59	VBAR=	19.69	DIST=	16.8;
DIAM=	16.80	BA=	1.53	CUFT=	35.96	VBAR=	23.50	DIST=	35.8;
DIAM=	14.30	BA=	1.11	CUFT=	24.10	VBAR=	21.71	DIST=	39.3;
DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST=	28.7;

SUM VBAR SQUARED = 49970.13

RUNNING TOTAL VBAR SQUARED = 179564.87

SAMPLE POINT COORDINATES ARE 1075.0 1715.0

DIAM=	17.00	BA=	1.57	CUFT=	37.04	VBAR=	23.59	DIST=	42.2;
DIAM=	8.70	BA=	0.41	CUFT=	7.30	VBAR=	17.80	DIST=	3.9;
DIAM=	8.60	BA=	0.40	CUFT=	7.11	VBAR=	17.77	DIST=	19.7;
DIAM=	16.20	BA=	1.43	CUFT=	32.84	VBAR=	22.96	DIST=	36.2;

DIAM= 13.80 BA= 1.03 CUFT= 22.08 VBAR= 21.43 DIST= 36.5;
DIAM= 13.70 BA= 1.02 CUFT= 21.69 VBAR= 21.26 DIST= 30.4;
DIAM= 11.90 BA= 0.77 CUFT= 15.39 VBAR= 19.98 DIST= 17.9;
DIAM= 10.00 BA= 0.54 CUFT= 10.15 VBAR= 18.79 DIST= 23.2;
DIAM= 10.90 BA= 0.64 CUFT= 12.46 VBAR= 19.46 DIST= 17.0;
DIAM= 10.70 BA= 0.62 CUFT= 11.92 VBAR= 19.22 DIST= 6.2;
DIAM= 15.70 BA= 1.34 CUFT= 30.37 VBAR= 22.66 DIST= 39.0;
DIAM= 20.90 BA= 2.38 CUFT= 62.48 VBAR= 26.25 DIST= 42.9;
DIAM= 16.70 BA= 1.52 CUFT= 35.43 VBAR= 23.30 DIST= 16.1;
DIAM= 9.60 BA= 0.50 CUFT= 9.21 VBAR= 18.42 DIST= 23.9;

SUM VBAR SQUARED = 85784.55

RUNNING TOTAL VBAR SQUARED = 265349.42

SAMPLE POINT COORDINATES ARE 1212.0 1100.0
DIAM= 9.20 BA= 0.46 CUFT= 8.33 VBAR= 18.10 DIST= 19.9;
DIAM= 6.70 BA= 0.24 CUFT= 3.99 VBAR= 16.62 DIST= 5.8;
DIAM= 13.80 BA= 1.03 CUFT= 22.08 VBAR= 21.43 DIST= 12.7;
DIAM= 10.70 BA= 0.62 CUFT= 11.92 VBAR= 19.22 DIST= 22.3;
DIAM= 9.40 BA= 0.48 CUFT= 8.76 VBAR= 18.25 DIST= 25.7;
DIAM= 14.80 BA= 1.19 CUFT= 26.24 VBAR= 22.05 DIST= 39.7;
DIAM= 8.10 BA= 0.35 CUFT= 6.18 VBAR= 17.65 DIST= 13.4;
DIAM= 10.30 BA= 0.57 CUFT= 10.89 VBAR= 19.10 DIST= 19.3;
DIAM= 14.80 BA= 1.19 CUFT= 26.24 VBAR= 22.05 DIST= 20.0;
DIAM= 16.70 BA= 1.52 CUFT= 35.43 VBAR= 23.30 DIST= 40.2;
DIAM= 16.70 BA= 1.52 CUFT= 35.43 VBAR= 23.30 DIST= 19.4;
DIAM= 18.20 BA= 1.80 CUFT= 43.97 VBAR= 24.42 DIST= 41.9;
DIAM= 14.20 BA= 1.09 CUFT= 23.69 VBAR= 21.73 DIST= 31.7;

SUM VBAR SQUARED = 71406.52

RUNNING TOTAL VBAR SQUARED = 336755.94

SAMPLE POINT COORDINATES ARE 1212.0 1305.0
DIAM= 12.00 BA= 0.78 CUFT= 15.71 VBAR= 20.14 DIST= 24.7;
DIAM= 19.80 BA= 2.13 CUFT= 54.43 VBAR= 25.55 DIST= 27.4;
DIAM= 14.20 BA= 1.09 CUFT= 23.69 VBAR= 21.73 DIST= 10.3;
DIAM= 15.60 BA= 1.32 CUFT= 29.89 VBAR= 22.64 DIST= 40.1;
DIAM= 13.30 BA= 0.96 CUFT= 20.18 VBAR= 21.02 DIST= 15.6;
DIAM= 17.70 BA= 1.70 CUFT= 40.99 VBAR= 24.11 DIST= 32.3;
DIAM= 9.70 BA= 0.51 CUFT= 9.44 VBAR= 18.50 DIST= 15.4;
DIAM= 14.70 BA= 1.17 CUFT= 25.80 VBAR= 22.05 DIST= 31.6;
DIAM= 9.50 BA= 0.49 CUFT= 8.98 VBAR= 18.32 DIST= 20.4;

SUM VBAR SQUARED = 37659.28

RUNNING TOTAL VBAR SQUARED = 374415.22

SAMPLE POINT COORDINATES ARE 1212.0 1510.0
DIAM= 15.00 BA= 1.22 CUFT= 27.12 VBAR= 22.22 DIST= 35.2;
DIAM= 12.90 BA= 0.90 CUFT= 18.73 VBAR= 20.81 DIST= 3.1;
DIAM= 12.70 BA= 0.87 CUFT= 18.03 VBAR= 20.72 DIST= 15.0;
DIAM= 16.00 BA= 1.39 CUFT= 31.83 VBAR= 22.89 DIST= 40.6;

SUM VBAR SQUARED = 7506.48

RUNNING TOTAL VBAR SQUARED = 381921.70

SAMPLE POINT COORDINATES ARE 1212.0 1715.0

DIAM=	5.30	BA=	0.15	CUFT=	2.34	VBAR=	15.60	DIST=	5.4;
DIAM=	11.80	BA=	0.75	CUFT=	15.08	VBAR=	20.10	DIST=	20.3;
DIAM=	8.50	BA=	0.39	CUFT=	6.92	VBAR=	17.74	DIST=	14.6;
DIAM=	15.00	BA=	1.22	CUFT=	27.12	VBAR=	22.22	DIST=	37.0;
DIAM=	13.80	BA=	1.03	CUFT=	22.08	VBAR=	21.43	DIST=	25.9;
DIAM=	14.10	BA=	1.08	CUFT=	23.28	VBAR=	21.55	DIST=	9.2;
DIAM=	19.10	BA=	1.98	CUFT=	49.68	VBAR=	25.09	DIST=	52.2;
DIAM=	11.60	BA=	0.73	CUFT=	14.47	VBAR=	19.82	DIST=	20.1;

SUM VBAR SQUARED = 26748.60

RUNNING TOTAL VBAR SQUARED = 408670.30

SAMPLE POINT COORDINATES ARE 1349.0 1100.0

DIAM=	14.60	BA=	1.16	CUFT=	25.37	VBAR=	21.87	DIST=	19.1;
DIAM=	13.30	BA=	0.96	CUFT=	20.18	VBAR=	21.02	DIST=	36.5;
DIAM=	15.00	BA=	1.22	CUFT=	27.12	VBAR=	22.22	DIST=	16.2;
DIAM=	12.90	BA=	0.90	CUFT=	18.73	VBAR=	20.81	DIST=	5.2;
DIAM=	8.10	BA=	0.35	CUFT=	6.18	VBAR=	17.65	DIST=	19.1;
DIAM=	15.30	BA=	1.27	CUFT=	28.49	VBAR=	22.43	DIST=	20.4;
DIAM=	18.20	BA=	1.80	CUFT=	43.97	VBAR=	24.42	DIST=	40.6;

SUM VBAR SQUARED = 22626.17

RUNNING TOTAL VBAR SQUARED = 431296.47

SAMPLE POINT COORDINATES ARE 1349.0 1305.0

DIAM=	17.80	BA=	1.72	CUFT=	41.57	VBAR=	24.16	DIST=	32.8;
DIAM=	10.60	BA=	0.61	CUFT=	11.66	VBAR=	19.11	DIST=	13.9;
DIAM=	14.40	BA=	1.13	CUFT=	24.52	VBAR=	21.69	DIST=	36.1;
DIAM=	12.70	BA=	0.87	CUFT=	18.03	VBAR=	20.72	DIST=	18.7;
DIAM=	19.80	BA=	2.13	CUFT=	54.43	VBAR=	25.55	DIST=	12.0;
DIAM=	7.70	BA=	0.32	CUFT=	5.49	VBAR=	17.15	DIST=	14.8;
DIAM=	10.50	BA=	0.60	CUFT=	11.40	VBAR=	19.00	DIST=	23.9;
DIAM=	9.20	BA=	0.46	CUFT=	8.33	VBAR=	18.10	DIST=	15.6;
DIAM=	11.70	BA=	0.74	CUFT=	14.78	VBAR=	19.97	DIST=	12.6;
DIAM=	7.40	BA=	0.29	CUFT=	5.01	VBAR=	17.27	DIST=	19.4;
DIAM=	6.10	BA=	0.20	CUFT=	3.22	VBAR=	16.10	DIST=	16.0;

SUM VBAR SQUARED = 47882.19

RUNNING TOTAL VBAR SQUARED = 479178.66

SAMPLE POINT COORDINATES ARE 1349.0 1510.0

DIAM=	8.20	BA=	0.36	CUFT=	6.36	VBAR=	17.66	DIST=	20.8;
DIAM=	19.00	BA=	1.96	CUFT=	49.02	VBAR=	25.01	DIST=	32.5;
DIAM=	8.80	BA=	0.42	CUFT=	7.50	VBAR=	17.85	DIST=	21.7;
DIAM=	6.10	BA=	0.20	CUFT=	3.22	VBAR=	16.10	DIST=	8.0;
DIAM=	5.70	BA=	0.17	CUFT=	2.76	VBAR=	16.23	DIST=	10.6;
DIAM=	8.90	BA=	0.43	CUFT=	7.70	VBAR=	17.90	DIST=	18.8;
DIAM=	12.90	BA=	0.90	CUFT=	18.73	VBAR=	20.81	DIST=	30.6;
DIAM=	10.90	BA=	0.64	CUFT=	12.46	VBAR=	19.46	DIST=	23.4;
DIAM=	13.20	BA=	0.95	CUFT=	19.81	VBAR=	20.85	DIST=	26.0;
DIAM=	10.20	BA=	0.56	CUFT=	10.64	VBAR=	19.00	DIST=	25.9;
DIAM=	15.50	BA=	1.31	CUFT=	29.42	VBAR=	22.45	DIST=	16.9;

SUM VBAR SQUARED = 45505.42

RUNNING TOTAL VBAR SQUARED = 524684.08

SAMPLE POINT COORDINATES ARE 1349.0 1715.0

DIAM=	5.70	BA=	0.17	CUFT=	2.76	VBAR=	16.23	DIST= 14.1;
DIAM=	5.90	BA=	0.18	CUFT=	2.98	VBAR=	16.55	DIST= 8.0;
DIAM=	12.20	BA=	0.81	CUFT=	16.35	VBAR=	20.18	DIST= 24.7;
DIAM=	9.90	BA=	0.53	CUFT=	9.91	VBAR=	18.69	DIST= 18.8;
DIAM=	10.50	BA=	0.60	CUFT=	11.40	VBAR=	19.00	DIST= 26.3;
DIAM=	7.30	BA=	0.29	CUFT=	4.86	VBAR=	16.75	DIST= 17.4;
DIAM=	6.30	BA=	0.21	CUFT=	3.46	VBAR=	16.47	DIST= 9.6;
DIAM=	17.00	BA=	1.57	CUFT=	37.04	VBAR=	23.59	DIST= 45.4;
DIAM=	10.40	BA=	0.58	CUFT=	11.14	VBAR=	19.20	DIST= 20.3;
DIAM=	6.70	BA=	0.24	CUFT=	3.99	VBAR=	16.62	DIST= 8.9;

SUM VBAR SQUARED = 33591.55

RUNNING TOTAL VBAR SQUARED = 558275.63

SAMPLE POINT COORDINATES ARE 1485.0 1100.0

DIAM=	13.60	BA=	1.00	CUFT=	21.31	VBAR=	21.31	DIST= 36.0;
DIAM=	13.70	BA=	1.02	CUFT=	21.69	VBAR=	21.26	DIST= 22.9;
DIAM=	17.00	BA=	1.57	CUFT=	37.04	VBAR=	23.59	DIST= 31.3;
DIAM=	16.20	BA=	1.43	CUFT=	32.84	VBAR=	22.96	DIST= 44.0;
DIAM=	13.90	BA=	1.05	CUFT=	22.48	VBAR=	21.40	DIST= 26.4;
DIAM=	15.70	BA=	1.34	CUFT=	30.37	VBAR=	22.66	DIST= 15.8;
DIAM=	5.60	BA=	0.17	CUFT=	2.65	VBAR=	15.58	DIST= 10.8;
DIAM=	10.60	BA=	0.61	CUFT=	11.66	VBAR=	19.11	DIST= 13.0;
DIAM=	9.80	BA=	0.52	CUFT=	9.67	VBAR=	18.59	DIST= 23.7;
DIAM=	17.40	BA=	1.65	CUFT=	39.27	VBAR=	23.80	DIST= 6.2;
DIAM=	13.10	BA=	0.93	CUFT=	19.44	VBAR=	20.90	DIST= 9.5;
DIAM=	10.00	BA=	0.54	CUFT=	10.15	VBAR=	18.79	DIST= 17.2;
DIAM=	22.00	BA=	2.63	CUFT=	71.26	VBAR=	27.09	DIST= 51.8;

SUM VBAR SQUARED = 76751.16

RUNNING TOTAL VBAR SQUARED = 635026.79

SAMPLE POINT COORDINATES ARE 1485.0 1305.0

DIAM=	17.20	BA=	1.61	CUFT=	38.14	VBAR=	23.68	DIST= 33.6;
DIAM=	19.10	BA=	1.98	CUFT=	49.68	VBAR=	25.09	DIST= 42.0;
DIAM=	6.30	BA=	0.21	CUFT=	3.46	VBAR=	16.47	DIST= 13.8;
DIAM=	11.10	BA=	0.67	CUFT=	13.02	VBAR=	19.43	DIST= 26.8;
DIAM=	6.70	BA=	0.24	CUFT=	3.99	VBAR=	16.62	DIST= 15.9;
DIAM=	9.70	BA=	0.51	CUFT=	9.44	VBAR=	18.50	DIST= 21.9;
DIAM=	15.30	BA=	1.27	CUFT=	28.49	VBAR=	22.43	DIST= 12.9;
DIAM=	15.40	BA=	1.29	CUFT=	28.95	VBAR=	22.44	DIST= 14.4;
DIAM=	13.90	BA=	1.05	CUFT=	22.48	VBAR=	21.40	DIST= 24.2;

SUM VBAR SQUARED = 34618.32

RUNNING TOTAL VBAR SQUARED = 669645.11

SAMPLE POINT COORDINATES ARE 1485.0 1510.0

DIAM=	14.00	BA=	1.06	CUFT=	22.88	VBAR=	21.58	DIST= 30.6;
DIAM=	10.30	BA=	0.57	CUFT=	10.89	VBAR=	19.10	DIST= 1.4;
DIAM=	11.30	BA=	0.69	CUFT=	13.59	VBAR=	19.69	DIST= 23.0;
DIAM=	10.00	BA=	0.54	CUFT=	10.15	VBAR=	18.79	DIST= 21.1;
DIAM=	17.60	BA=	1.68	CUFT=	40.41	VBAR=	24.05	DIST= 18.7;
DIAM=	13.20	BA=	0.95	CUFT=	19.81	VBAR=	20.85	DIST= 32.2;
DIAM=	10.80	BA=	0.63	CUFT=	12.19	VBAR=	19.34	DIST= 12.6;

SUM VBAR SQUARED = 20563.56

RUNNING TOTAL VBAR SQUARED = 690208.67

SAMPLE POINT COORDINATES ARE 1485.0 1715.0

DIAM=	5.30	BA=	0.15	CUFT=	2.34	VBAR=	15.60	DIST=	14.3;
DIAM=	8.70	BA=	0.41	CUFT=	7.30	VBAR=	17.80	DIST=	16.7;
DIAM=	16.90	BA=	1.55	CUFT=	36.50	VBAR=	23.54	DIST=	28.5;
DIAM=	20.80	BA=	2.35	CUFT=	61.72	VBAR=	26.26	DIST=	47.9;
DIAM=	7.00	BA=	0.26	CUFT=	4.41	VBAR=	16.96	DIST=	10.8;
DIAM=	10.90	BA=	0.64	CUFT=	12.46	VBAR=	19.46	DIST=	10.6;
DIAM=	13.50	BA=	0.99	CUFT=	20.93	VBAR=	21.14	DIST=	21.6;

SUM VBAR SQUARED = 19813.37

RUNNING TOTAL VBAR SQUARED = 710022.04

A= 28.71 B= 12.82;

TOTAL NUMBER OF TREES SAMPLED = 158

AVERAGE TREE COUNT = 9.87

SUM VBAR = 3243.85

AVERAGE VBAR= 20.53

BASAL AREA PER ACRE = 98.75

AVERAGE VOLUME PER ACRE = 2027.33

TOTAL VOLUME IN CUBIC FEET = 23456.20

CVTC= 28.71 STDETC= 2.83 STDEVBR= 2.63 CVVBAR= 12.82;

STANDARD ERROR = 147.70

SAMPLING ERROR % = 7.28

COEFF. OF VARIATION % = 29.11

STANDARD ERROR OF MEAN TREE COUNT = 0.71

STANDARD ERROR OF MEAN VBAR = 0.21

SAMPLING ERROR OF TREE COUNT % = 7.18

SAMPLING ERROR OF VBAR % = 1.02

COMBINED SAMPLING ERROR TC & VBAR % = 7.25

OPTIMUM NUMBER OF TREE COUNT POINTS = 16.48
OPTIMUM NUMBER MEASUREMENT POINTS = 0.33

RATIO OF TREE COUNT POINTS TO MEASUREMENT POINTS IS 50 TO 1

PRACTICAL NUMBER OF TREE COUNT POINTS IS 10.00
PRACTICAL NUMBER OF MEASUREMENT POINTS IS 1.00

COST FOR COMBINED SAMPLING ERROR OF 10%

OPTIMUM COST = 23.45

PRACTICAL COST = 18.87

BAF= 15;

SAMPLE POINT COORDINATES ARE 1075.0 1100.0

DIAM=	17.20	BA=	1.61	CUFT=	38.14	VBAR=	23.68	DIST= 22.8;
DIAM=	5.20	BA=	0.14	CUFT=	2.25	VBAR=	16.07	DIST= 5.5;
DIAM=	14.50	BA=	1.14	CUFT=	24.94	VBAR=	21.87	DIST= 26.5;
DIAM=	22.00	BA=	2.63	CUFT=	71.26	VBAR=	27.09	DIST= 10.7;
DIAM=	7.90	BA=	0.34	CUFT=	5.83	VBAR=	17.14	DIST= 10.7;

SUM VBAR SQUARED = 11204.22

RUNNING TOTAL VBAR SQUARED = 11204.22

SAMPLE POINT COORDINATES ARE 1075.0 1305.0

DIAM=	11.60	BA=	0.73	CUFT=	14.47	VBAR=	19.82	DIST= 23.6;
DIAM=	12.30	BA=	0.82	CUFT=	16.68	VBAR=	20.34	DIST= 22.2;
DIAM=	13.60	BA=	1.00	CUFT=	21.31	VBAR=	21.31	DIST= 26.7;
DIAM=	13.50	BA=	0.99	CUFT=	20.93	VBAR=	21.14	DIST= 23.4;
DIAM=	9.70	BA=	0.51	CUFT=	9.44	VBAR=	18.50	DIST= 20.7;
DIAM=	16.90	BA=	1.55	CUFT=	36.50	VBAR=	23.54	DIST= 32.3;
DIAM=	13.30	BA=	0.96	CUFT=	20.18	VBAR=	21.02	DIST= 13.7;
DIAM=	12.00	BA=	0.78	CUFT=	15.71	VBAR=	20.14	DIST= 4.4;
DIAM=	13.60	BA=	1.00	CUFT=	21.31	VBAR=	21.31	DIST= 11.8;
DIAM=	12.90	BA=	0.90	CUFT=	18.73	VBAR=	20.81	DIST= 26.4;
DIAM=	9.00	BA=	0.44	CUFT=	7.91	VBAR=	17.97	DIST= 16.8;
DIAM=	16.00	BA=	1.39	CUFT=	31.83	VBAR=	22.89	DIST= 33.8;

SUM VBAR SQUARED = 61896.46

RUNNING TOTAL VBAR SQUARED = 73100.68

SAMPLE POINT COORDINATES ARE 1075.0 1510.0

DIAM=	8.20	BA=	0.36	CUFT=	6.36	VBAR=	17.66	DIST= 8.6;
DIAM=	15.30	BA=	1.27	CUFT=	28.49	VBAR=	22.43	DIST= 29.4;
DIAM=	11.30	BA=	0.69	CUFT=	13.59	VBAR=	19.69	DIST= 16.8;
DIAM=	16.80	BA=	1.53	CUFT=	35.96	VBAR=	23.50	DIST= 35.8;
DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST= 28.7;

SUM VBAR SQUARED = 11359.29

RUNNING TOTAL VBAR SQUARED = 84459.97

SAMPLE POINT COORDINATES ARE 1075.0 1715.0

DIAM=	8.70	BA=	0.41	CUFT=	7.30	VBAR=	17.80	DIST= 3.9;
DIAM=	16.20	BA=	1.43	CUFT=	32.84	VBAR=	22.96	DIST= 36.2;
DIAM=	13.70	BA=	1.02	CUFT=	21.69	VBAR=	21.26	DIST= 30.4;
DIAM=	11.90	BA=	0.77	CUFT=	15.39	VBAR=	19.98	DIST= 17.9;
DIAM=	10.90	BA=	0.64	CUFT=	12.46	VBAR=	19.46	DIST= 17.0;
DIAM=	10.70	BA=	0.62	CUFT=	11.92	VBAR=	19.22	DIST= 6.2;
DIAM=	20.90	BA=	2.38	CUFT=	62.48	VBAR=	26.25	DIST= 42.9;

DIAM= 16.70 BA= 1.52 CUFT= 35.43 VBAR= 23.30 DIST= 16.1;

SUM VBAR SQUARED = 28978.25

RUNNING TOTAL VBAR SQUARED = 113438.22

SAMPLE POINT COORDINATES ARE 1212.0 1100.0

DIAM=	9.20	BA=	0.46	CUFT=	8.33	VBAR=	18.10	DIST= 19.9;
DIAM=	6.70	BA=	0.24	CUFT=	3.99	VBAR=	16.62	DIST= 5.8;
DIAM=	13.80	BA=	1.03	CUFT=	22.08	VBAR=	21.43	DIST= 12.7;
DIAM=	10.70	BA=	0.62	CUFT=	11.92	VBAR=	19.22	DIST= 22.3;
DIAM=	8.10	BA=	0.35	CUFT=	6.18	VBAR=	17.65	DIST= 13.4;
DIAM=	10.30	BA=	0.57	CUFT=	10.89	VBAR=	19.10	DIST= 19.3;
DIAM=	14.80	BA=	1.19	CUFT=	26.24	VBAR=	22.05	DIST= 20.0;
DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST= 19.4;
DIAM=	14.20	BA=	1.09	CUFT=	23.69	VBAR=	21.73	DIST= 31.7;

SUM VBAR SQUARED = 32112.64

RUNNING TOTAL VBAR SQUARED = 145550.86

SAMPLE POINT COORDINATES ARE 1212.0 1305.0

DIAM=	12.00	BA=	0.78	CUFT=	15.71	VBAR=	20.14	DIST= 24.7;
DIAM=	19.80	BA=	2.13	CUFT=	54.43	VBAR=	25.55	DIST= 27.4;
DIAM=	14.20	BA=	1.09	CUFT=	23.69	VBAR=	21.73	DIST= 10.3;
DIAM=	13.30	BA=	0.96	CUFT=	20.18	VBAR=	21.02	DIST= 15.6;
DIAM=	17.70	BA=	1.70	CUFT=	40.99	VBAR=	24.11	DIST= 32.3;
DIAM=	9.70	BA=	0.51	CUFT=	9.44	VBAR=	18.50	DIST= 15.4;
DIAM=	14.70	BA=	1.17	CUFT=	25.80	VBAR=	22.05	DIST= 31.6;
DIAM=	9.50	BA=	0.49	CUFT=	8.98	VBAR=	18.32	DIST= 20.4;

SUM VBAR SQUARED = 29384.81

RUNNING TOTAL VBAR SQUARED = 174935.67

SAMPLE POINT COORDINATES ARE 1212.0 1510.0

DIAM=	12.90	BA=	0.90	CUFT=	18.73	VBAR=	20.81	DIST= 3.1;
DIAM=	12.70	BA=	0.87	CUFT=	18.03	VBAR=	20.72	DIST= 15.0;

SUM VBAR SQUARED = 1724.74

RUNNING TOTAL VBAR SQUARED = 176660.41

SAMPLE POINT COORDINATES ARE 1212.0 1715.0

DIAM=	5.30	BA=	0.15	CUFT=	2.34	VBAR=	15.60	DIST= 5.4;
DIAM=	11.80	BA=	0.75	CUFT=	15.08	VBAR=	20.10	DIST= 20.3;
DIAM=	8.50	BA=	0.39	CUFT=	6.92	VBAR=	17.74	DIST= 14.6;
DIAM=	13.80	BA=	1.03	CUFT=	22.08	VBAR=	21.43	DIST= 25.9;
DIAM=	14.10	BA=	1.08	CUFT=	23.28	VBAR=	21.55	DIST= 9.2;
DIAM=	11.60	BA=	0.73	CUFT=	14.47	VBAR=	19.82	DIST= 20.1;

SUM VBAR SQUARED = 13511.73

RUNNING TOTAL VBAR SQUARED = 190172.14

SAMPLE POINT COORDINATES ARE 1349.0 1100.0

DIAM=	14.60	BA=	1.16	CUFT=	25.37	VBAR=	21.87	DIST= 19.1;
DIAM=	15.00	BA=	1.22	CUFT=	27.12	VBAR=	22.22	DIST= 16.2;
DIAM=	12.90	BA=	0.90	CUFT=	18.73	VBAR=	20.81	DIST= 5.2;
DIAM=	15.30	BA=	1.27	CUFT=	28.49	VBAR=	22.43	DIST= 20.4;

DIAM= 18.20 BA= 1.80 CUFT= 43.97 VBAR= 24.42 DIST= 40.6;

SUM VBAR SQUARED = 12488.06

RUNNING TOTAL VBAR SQUARED = 202660.20

SAMPLE POINT COORDINATES ARE 1349.0 1305.0

DIAM= 17.80 BA= 1.72 CUFT= 41.57 VBAR= 24.16 DIST= 32.8;
DIAM= 10.60 BA= 0.61 CUFT= 11.66 VBAR= 19.11 DIST= 13.9;
DIAM= 12.70 BA= 0.87 CUFT= 18.03 VBAR= 20.72 DIST= 18.7;
DIAM= 19.80 BA= 2.13 CUFT= 54.43 VBAR= 25.55 DIST= 12.0;
DIAM= 7.70 BA= 0.32 CUFT= 5.49 VBAR= 17.15 DIST= 14.8;
DIAM= 9.20 BA= 0.46 CUFT= 8.33 VBAR= 18.10 DIST= 15.6;
DIAM= 11.70 BA= 0.74 CUFT= 14.78 VBAR= 19.97 DIST= 12.6;

SUM VBAR SQUARED = 20955.45

RUNNING TOTAL VBAR SQUARED = 223615.65

SAMPLE POINT COORDINATES ARE 1349.0 1510.0

DIAM= 19.00 BA= 1.96 CUFT= 49.02 VBAR= 25.01 DIST= 32.5;
DIAM= 6.10 BA= 0.20 CUFT= 3.22 VBAR= 16.10 DIST= 8.0;
DIAM= 5.70 BA= 0.17 CUFT= 2.76 VBAR= 16.23 DIST= 10.6;
DIAM= 8.90 BA= 0.43 CUFT= 7.70 VBAR= 17.90 DIST= 18.8;
DIAM= 10.90 BA= 0.64 CUFT= 12.46 VBAR= 19.46 DIST= 23.4;
DIAM= 13.20 BA= 0.95 CUFT= 19.81 VBAR= 20.85 DIST= 26.0;
DIAM= 15.50 BA= 1.31 CUFT= 29.42 VBAR= 22.45 DIST= 16.9;

SUM VBAR SQUARED = 19044.00

RUNNING TOTAL VBAR SQUARED = 242659.65

SAMPLE POINT COORDINATES ARE 1349.0 1715.0

DIAM= 5.90 BA= 0.18 CUFT= 2.98 VBAR= 16.55 DIST= 8.0;
DIAM= 12.20 BA= 0.81 CUFT= 16.35 VBAR= 20.18 DIST= 24.7;
DIAM= 9.90 BA= 0.53 CUFT= 9.91 VBAR= 18.69 DIST= 18.8;
DIAM= 6.30 BA= 0.21 CUFT= 3.46 VBAR= 16.47 DIST= 9.6;
DIAM= 10.40 BA= 0.58 CUFT= 11.14 VBAR= 19.20 DIST= 20.3;
DIAM= 6.70 BA= 0.24 CUFT= 3.99 VBAR= 16.62 DIST= 8.9;

SUM VBAR SQUARED = 11601.44

RUNNING TOTAL VBAR SQUARED = 254261.09

SAMPLE POINT COORDINATES ARE 1485.0 1100.0

DIAM= 13.70 BA= 1.02 CUFT= 21.69 VBAR= 21.26 DIST= 22.9;
DIAM= 17.00 BA= 1.57 CUFT= 37.04 VBAR= 23.59 DIST= 31.3;
DIAM= 13.90 BA= 1.05 CUFT= 22.48 VBAR= 21.40 DIST= 26.4;
DIAM= 15.70 BA= 1.34 CUFT= 30.37 VBAR= 22.66 DIST= 15.8;
DIAM= 5.60 BA= 0.17 CUFT= 2.65 VBAR= 15.58 DIST= 10.8;
DIAM= 10.60 BA= 0.61 CUFT= 11.66 VBAR= 19.11 DIST= 13.0;
DIAM= 17.40 BA= 1.65 CUFT= 39.27 VBAR= 23.80 DIST= 6.2;
DIAM= 13.10 BA= 0.93 CUFT= 19.44 VBAR= 20.90 DIST= 9.5;
DIAM= 10.00 BA= 0.54 CUFT= 10.15 VBAR= 18.79 DIST= 17.2;

SUM VBAR SQUARED = 35002.66

RUNNING TOTAL VBAR SQUARED = 289263.75

SAMPLE POINT COORDINATES ARE 1485.0 1305.0

DIAM= 17.20 BA= 1.61 CUFT= 38.14 VBAR= 23.68 DIST= 33.6;
DIAM= 19.10 BA= 1.98 CUFT= 49.68 VBAR= 25.09 DIST= 42.0;
DIAM= 6.30 BA= 0.21 CUFT= 3.46 VBAR= 16.47 DIST= 13.8;
DIAM= 15.30 BA= 1.27 CUFT= 28.49 VBAR= 22.43 DIST= 12.9;
DIAM= 15.40 BA= 1.29 CUFT= 28.95 VBAR= 22.44 DIST= 14.4;
DIAM= 13.90 BA= 1.05 CUFT= 22.48 VBAR= 21.40 DIST= 24.2;

SUM VBAR SQUARED = 17294.88

RUNNING TOTAL VBAR SQUARED = 306558.63

SAMPLE POINT COORDINATES ARE 1485.0 1510.0
DIAM= 14.00 BA= 1.06 CUFT= 22.88 VBAR= 21.58 DIST= 30.6;
DIAM= 10.30 BA= 0.57 CUFT= 10.89 VBAR= 19.10 DIST= 1.4;
DIAM= 11.30 BA= 0.69 CUFT= 13.59 VBAR= 19.69 DIST= 23.0;
DIAM= 10.00 BA= 0.54 CUFT= 10.15 VBAR= 18.79 DIST= 21.1;
DIAM= 17.60 BA= 1.68 CUFT= 40.41 VBAR= 24.05 DIST= 18.7;
DIAM= 10.80 BA= 0.63 CUFT= 12.19 VBAR= 19.34 DIST= 12.6;

SUM VBAR SQUARED = 15018.50

RUNNING TOTAL VBAR SQUARED = 321577.13

SAMPLE POINT COORDINATES ARE 1485.0 1715.0
DIAM= 8.70 BA= 0.41 CUFT= 7.30 VBAR= 17.80 DIST= 16.7;
DIAM= 16.90 BA= 1.55 CUFT= 36.50 VBAR= 23.54 DIST= 28.5;
DIAM= 7.00 BA= 0.26 CUFT= 4.41 VBAR= 16.96 DIST= 10.8;
DIAM= 10.90 BA= 0.64 CUFT= 12.46 VBAR= 19.46 DIST= 10.6;
DIAM= 13.50 BA= 0.99 CUFT= 20.93 VBAR= 21.14 DIST= 21.6;

SUM VBAR SQUARED = 9781.20

RUNNING TOTAL VBAR SQUARED = 331358.33
A= 33.79 B= 12.45;

TOTAL NUMBER OF TREES SAMPLED = 106

AVERAGE TREE COUNT = 6.62

SUM VBAR = 2182.11

AVERAGE VBAR= 20.58

BASAL AREA PER ACRE = 99.37

AVERAGE VOLUME PER ACRE = 2045.03

TOTAL VOLUME IN CUBIC FEET = 23660.99

CVTC= 33.79 STDETC= 2.24 STDEVBR= 2.57 CVVBAR= 12.45;

STANDARD ERROR = 177.89

SAMPLING ERROR % = 8.69

COEFF. OF VARIATION % = 34.75

STANDARD ERROR OF MEAN TREE COUNT = 0.56

STANDARD ERROR OF MEAN VBAR = 0.25

SAMPLING ERROR OF TREE COUNT % = 8.45

SAMPLING ERROR OF VBAR % = 1.21

COMBINED SAMPLING ERROR TC & VBAR % = 8.53

OPTIMUM NUMBER OF TREE COUNT POINTS = 22.83
OPTIMUM NUMBER MEASUREMENT POINTS = 0.46

RATIO OF TREE COUNT POINTS TO MEASUREMENT POINTS IS 49 TO 1

PRACTICAL NUMBER OF TREE COUNT POINTS IS 15.00
PRACTICAL NUMBER OF MEASUREMENT POINTS IS 1.00

COST FOR COMBINED SAMPLING ERROR OF 10%

OPTIMUM COST = 25.31

PRACTICAL COST = 20.40

BAF= 20;

SAMPLE POINT COORDINATES ARE 1075.0 1100.0

DIAM=	17.20	BA=	1.61	CUFT=	38.14	VBAR=	23.68	DIST=	22.8;
DIAM=	5.20	BA=	0.14	CUFT=	2.25	VBAR=	16.07	DIST=	5.5;
DIAM=	14.50	BA=	1.14	CUFT=	24.94	VBAR=	21.87	DIST=	26.5;
DIAM=	22.00	BA=	2.63	CUFT=	71.26	VBAR=	27.09	DIST=	10.7;
DIAM=	7.90	BA=	0.34	CUFT=	5.83	VBAR=	17.14	DIST=	10.7;

SUM VBAR SQUARED = 11204.22

RUNNING TOTAL VBAR SQUARED = 11204.22

SAMPLE POINT COORDINATES ARE 1075.0 1305.0

DIAM=	12.30	BA=	0.82	CUFT=	16.68	VBAR=	20.34	DIST=	22.2;
DIAM=	13.50	BA=	0.99	CUFT=	20.93	VBAR=	21.14	DIST=	23.4;
DIAM=	16.90	BA=	1.55	CUFT=	36.50	VBAR=	23.54	DIST=	32.3;
DIAM=	13.30	BA=	0.96	CUFT=	20.18	VBAR=	21.02	DIST=	13.7;
DIAM=	12.00	BA=	0.78	CUFT=	15.71	VBAR=	20.14	DIST=	4.4;
DIAM=	13.60	BA=	1.00	CUFT=	21.31	VBAR=	21.31	DIST=	11.8;
DIAM=	9.00	BA=	0.44	CUFT=	7.91	VBAR=	17.97	DIST=	16.8;

SUM VBAR SQUARED = 21158.61

RUNNING TOTAL VBAR SQUARED = 32362.83

SAMPLE POINT COORDINATES ARE 1075.0 1510.0

DIAM=	8.20	BA=	0.36	CUFT=	6.36	VBAR=	17.66	DIST=	8.6;
DIAM=	15.30	BA=	1.27	CUFT=	28.49	VBAR=	22.43	DIST=	29.4;
DIAM=	11.30	BA=	0.69	CUFT=	13.59	VBAR=	19.69	DIST=	16.8;

DIAM= 16.70 BA= 1.52 CUFT= 35.43 VBAR= 23.30 DIST= 28.7;

SUM VBAR SQUARED = 6902.28

RUNNING TOTAL VBAR SQUARED = 39265.11

SAMPLE POINT COORDINATES ARE 1075.0 1715.0

DIAM=	8.70	BA=	0.41	CUFT=	7.30	VBAR=	17.80	DIST= 3.9;
DIAM=	11.90	BA=	0.77	CUFT=	15.39	VBAR=	19.98	DIST= 17.9;
DIAM=	10.90	BA=	0.64	CUFT=	12.46	VBAR=	19.46	DIST= 17.0;
DIAM=	10.70	BA=	0.62	CUFT=	11.92	VBAR=	19.22	DIST= 6.2;
DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST= 16.1;

SUM VBAR SQUARED = 9952.05

RUNNING TOTAL VBAR SQUARED = 49217.16

SAMPLE POINT COORDINATES ARE 1212.0 1100.0

DIAM=	6.70	BA=	0.24	CUFT=	3.99	VBAR=	16.62	DIST= 5.8;
DIAM=	13.80	BA=	1.03	CUFT=	22.08	VBAR=	21.43	DIST= 12.7;
DIAM=	8.10	BA=	0.35	CUFT=	6.18	VBAR=	17.65	DIST= 13.4;
DIAM=	10.30	BA=	0.57	CUFT=	10.89	VBAR=	19.10	DIST= 19.3;
DIAM=	14.80	BA=	1.19	CUFT=	26.24	VBAR=	22.05	DIST= 20.0;
DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST= 19.4;

SUM VBAR SQUARED = 14436.02

RUNNING TOTAL VBAR SQUARED = 63653.18

SAMPLE POINT COORDINATES ARE 1212.0 1305.0

DIAM=	19.80	BA=	2.13	CUFT=	54.43	VBAR=	25.55	DIST= 27.4;
DIAM=	14.20	BA=	1.09	CUFT=	23.69	VBAR=	21.73	DIST= 10.3;
DIAM=	13.30	BA=	0.96	CUFT=	20.18	VBAR=	21.02	DIST= 15.6;
DIAM=	17.70	BA=	1.70	CUFT=	40.99	VBAR=	24.11	DIST= 32.3;
DIAM=	9.70	BA=	0.51	CUFT=	9.44	VBAR=	18.50	DIST= 15.4;

SUM VBAR SQUARED = 12301.02

RUNNING TOTAL VBAR SQUARED = 75954.20

SAMPLE POINT COORDINATES ARE 1212.0 1510.0

DIAM=	12.90	BA=	0.90	CUFT=	18.73	VBAR=	20.81	DIST= 3.1;
DIAM=	12.70	BA=	0.87	CUFT=	18.03	VBAR=	20.72	DIST= 15.0;

SUM VBAR SQUARED = 1724.74

RUNNING TOTAL VBAR SQUARED = 77678.94

SAMPLE POINT COORDINATES ARE 1212.0 1715.0

DIAM=	5.30	BA=	0.15	CUFT=	2.34	VBAR=	15.60	DIST= 5.4;
DIAM=	11.80	BA=	0.75	CUFT=	15.08	VBAR=	20.10	DIST= 20.3;
DIAM=	8.50	BA=	0.39	CUFT=	6.92	VBAR=	17.74	DIST= 14.6;
DIAM=	13.80	BA=	1.03	CUFT=	22.08	VBAR=	21.43	DIST= 25.9;
DIAM=	14.10	BA=	1.08	CUFT=	23.28	VBAR=	21.55	DIST= 9.2;
DIAM=	11.60	BA=	0.73	CUFT=	14.47	VBAR=	19.82	DIST= 20.1;

SUM VBAR SQUARED = 13511.73

RUNNING TOTAL VBAR SQUARED = 91190.67

SAMPLE POINT COORDINATES ARE 1349.0 1100.0

DIAM= 14.60	BA= 1.16	CUFT= 25.37	VBAR= 21.87	DIST= 19.1;
DIAM= 15.00	BA= 1.22	CUFT= 27.12	VBAR= 22.22	DIST= 16.2;
DIAM= 12.90	BA= 0.90	CUFT= 18.73	VBAR= 20.81	DIST= 5.2;
DIAM= 15.30	BA= 1.27	CUFT= 28.49	VBAR= 22.43	DIST= 20.4;

SUM VBAR SQUARED = 7626.52

RUNNING TOTAL VBAR SQUARED = 98817.19

SAMPLE POINT COORDINATES ARE 1349.0 1305.0

DIAM= 17.80	BA= 1.72	CUFT= 41.57	VBAR= 24.16	DIST= 32.8;
DIAM= 10.60	BA= 0.61	CUFT= 11.66	VBAR= 19.11	DIST= 13.9;
DIAM= 12.70	BA= 0.87	CUFT= 18.03	VBAR= 20.72	DIST= 18.7;
DIAM= 19.80	BA= 2.13	CUFT= 54.43	VBAR= 25.55	DIST= 12.0;
DIAM= 7.70	BA= 0.32	CUFT= 5.49	VBAR= 17.15	DIST= 14.8;
DIAM= 9.20	BA= 0.46	CUFT= 8.33	VBAR= 18.10	DIST= 15.6;
DIAM= 11.70	BA= 0.74	CUFT= 14.78	VBAR= 19.97	DIST= 12.6;

SUM VBAR SQUARED = 20955.45

RUNNING TOTAL VBAR SQUARED = 119772.64

SAMPLE POINT COORDINATES ARE 1349.0 1510.0

DIAM= 19.00	BA= 1.96	CUFT= 49.02	VBAR= 25.01	DIST= 32.5;
DIAM= 6.10	BA= 0.20	CUFT= 3.22	VBAR= 16.10	DIST= 8.0;
DIAM= 5.70	BA= 0.17	CUFT= 2.76	VBAR= 16.23	DIST= 10.6;
DIAM= 15.50	BA= 1.31	CUFT= 29.42	VBAR= 22.45	DIST= 16.9;

SUM VBAR SQUARED = 6366.44

RUNNING TOTAL VBAR SQUARED = 126139.08

SAMPLE POINT COORDINATES ARE 1349.0 1715.0

DIAM= 5.90	BA= 0.18	CUFT= 2.98	VBAR= 16.55	DIST= 8.0;
DIAM= 9.90	BA= 0.53	CUFT= 9.91	VBAR= 18.69	DIST= 18.8;
DIAM= 6.30	BA= 0.21	CUFT= 3.46	VBAR= 16.47	DIST= 9.6;
DIAM= 6.70	BA= 0.24	CUFT= 3.99	VBAR= 16.62	DIST= 8.9;

SUM VBAR SQUARED = 4668.98

RUNNING TOTAL VBAR SQUARED = 130808.06

SAMPLE POINT COORDINATES ARE 1485.0 1100.0

DIAM= 13.70	BA= 1.02	CUFT= 21.69	VBAR= 21.26	DIST= 22.9;
DIAM= 17.00	BA= 1.57	CUFT= 37.04	VBAR= 23.59	DIST= 31.3;
DIAM= 13.90	BA= 1.05	CUFT= 22.48	VBAR= 21.40	DIST= 26.4;
DIAM= 15.70	BA= 1.34	CUFT= 30.37	VBAR= 22.66	DIST= 15.8;
DIAM= 5.60	BA= 0.17	CUFT= 2.65	VBAR= 15.58	DIST= 10.8;
DIAM= 10.60	BA= 0.61	CUFT= 11.66	VBAR= 19.11	DIST= 13.0;
DIAM= 17.40	BA= 1.65	CUFT= 39.27	VBAR= 23.80	DIST= 6.2;
DIAM= 13.10	BA= 0.93	CUFT= 19.44	VBAR= 20.90	DIST= 9.5;
DIAM= 10.00	BA= 0.54	CUFT= 10.15	VBAR= 18.79	DIST= 17.2;

SUM VBAR SQUARED = 35002.66

RUNNING TOTAL VBAR SQUARED = 165810.72

SAMPLE POINT COORDINATES ARE 1485.0 1305.0

DIAM= 15.30	BA= 1.27	CUFT= 28.49	VBAR= 22.43	DIST= 12.9;

DIAM= 15.40 BA= 1.29 CUFT= 28.95 VBAR= 22.44 DIST= 14.4;
DIAM= 13.90 BA= 1.05 CUFT= 22.48 VBAR= 21.40 DIST= 24.2;

SUM VBAR SQUARED = 4391.71

RUNNING TOTAL VBAR SQUARED = 170202.43

SAMPLE POINT COORDINATES ARE 1485.0 1510.0
DIAM= 10.30 BA= 0.57 CUFT= 10.89 VBAR= 19.10 DIST= 1.4;
DIAM= 17.60 BA= 1.68 CUFT= 40.41 VBAR= 24.05 DIST= 18.7;
DIAM= 10.80 BA= 0.63 CUFT= 12.19 VBAR= 19.34 DIST= 12.6;

SUM VBAR SQUARED = 3905.00

RUNNING TOTAL VBAR SQUARED = 174107.43

SAMPLE POINT COORDINATES ARE 1485.0 1715.0
DIAM= 8.70 BA= 0.41 CUFT= 7.30 VBAR= 17.80 DIST= 16.7;
DIAM= 16.90 BA= 1.55 CUFT= 36.50 VBAR= 23.54 DIST= 28.5;
DIAM= 7.00 BA= 0.26 CUFT= 4.41 VBAR= 16.96 DIST= 10.8;
DIAM= 10.90 BA= 0.64 CUFT= 12.46 VBAR= 19.46 DIST= 10.6;
DIAM= 13.50 BA= 0.99 CUFT= 20.93 VBAR= 21.14 DIST= 21.6;

SUM VBAR SQUARED = 9781.20

RUNNING TOTAL VBAR SQUARED = 183888.63
A= 35.63 B= 12.53;

TOTAL NUMBER OF TREES SAMPLED = 79

AVERAGE TREE COUNT = 4.93

SUM VBAR = 1617.94

AVERAGE VBAR= 20.48

BASAL AREA PER ACRE = 98.75

AVERAGE VOLUME PER ACRE = 2022.40

TOTAL VOLUME IN CUBIC FEET = 23399.16

CVTC= 35.63 STDETC= 1.75 STDEVBR= 2.57 CVVBAR= 12.53;

STANDARD ERROR = 183.85

SAMPLING ERROR % = 9.09

COEFF. OF VARIATION % = 36.35

STANDARD ERROR OF MEAN TREE COUNT = 0.44

STANDARD ERROR OF MEAN VBAR = 0.29

SAMPLING ERROR OF TREE COUNT % = 8.91

SAMPLING ERROR OF VBAR % = 1.41

COMBINED SAMPLING ERROR TC & VBAR % = 9.02

OPTIMUM NUMBER OF TREE COUNT POINTS = 25.38
OPTIMUM NUMBER MEASUREMENT POINTS = 0.63

RATIO OF TREE COUNT POINTS TO MEASUREMENT POINTS IS 40 TO 1

PRACTICAL NUMBER OF TREE COUNT POINTS IS 19.00
PRACTICAL NUMBER OF MEASUREMENT POINTS IS 1.00

COST FOR COMBINED SAMPLING ERROR OF 10%

OPTIMUM COST = 24.90

PRACTICAL COST = 21.34

BAF= 30;

SAMPLE POINT COORDINATES ARE 1075.0 1100.0

DIAM=	17.20	BA=	1.61	CUFT=	38.14	VBAR=	23.68	DIST=	22.8;
DIAM=	5.20	BA=	0.14	CUFT=	2.25	VBAR=	16.07	DIST=	5.5;
DIAM=	22.00	BA=	2.63	CUFT=	71.26	VBAR=	27.09	DIST=	10.7;
DIAM=	7.90	BA=	0.34	CUFT=	5.83	VBAR=	17.14	DIST=	10.7;

SUM VBAR SQUARED = 7052.64

RUNNING TOTAL VBAR SQUARED = 7052.64

SAMPLE POINT COORDINATES ARE 1075.0 1305.0

DIAM=	13.30	BA=	0.96	CUFT=	20.18	VBAR=	21.02	DIST=	13.7;
DIAM=	12.00	BA=	0.78	CUFT=	15.71	VBAR=	20.14	DIST=	4.4;
DIAM=	13.60	BA=	1.00	CUFT=	21.31	VBAR=	21.31	DIST=	11.8;

SUM VBAR SQUARED = 3902.50

RUNNING TOTAL VBAR SQUARED = 10955.14

SAMPLE POINT COORDINATES ARE 1075.0 1510.0

DIAM=	8.20	BA=	0.36	CUFT=	6.36	VBAR=	17.66	DIST=	8.6;
DIAM=	11.30	BA=	0.69	CUFT=	13.59	VBAR=	19.69	DIST=	16.8;

SUM VBAR SQUARED = 1395.02

RUNNING TOTAL VBAR SQUARED = 12350.16

SAMPLE POINT COORDINATES ARE 1075.0 1715.0

DIAM=	8.70	BA=	0.41	CUFT=	7.30	VBAR=	17.80	DIST=	3.9;
DIAM=	11.90	BA=	0.77	CUFT=	15.39	VBAR=	19.98	DIST=	17.9;
DIAM=	10.90	BA=	0.64	CUFT=	12.46	VBAR=	19.46	DIST=	17.0;
DIAM=	10.70	BA=	0.62	CUFT=	11.92	VBAR=	19.22	DIST=	6.2;
DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST=	16.1;

SUM VBAR SQUARED = 9952.05

RUNNING TOTAL VBAR SQUARED = 22302.21

SAMPLE POINT COORDINATES ARE 1212.0 1100.0

DIAM=	6.70	BA=	0.24	CUFT=	3.99	VBAR=	16.62	DIST=	5.8;
DIAM=	13.80	BA=	1.03	CUFT=	22.08	VBAR=	21.43	DIST=	12.7;
DIAM=	14.80	BA=	1.19	CUFT=	26.24	VBAR=	22.05	DIST=	20.0;
DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST=	19.4;

SUM VBAR SQUARED = 6955.55

RUNNING TOTAL VBAR SQUARED = 29257.76

SAMPLE POINT COORDINATES ARE 1212.0 1305.0

DIAM=	19.80	BA=	2.13	CUFT=	54.43	VBAR=	25.55	DIST=	27.4;
DIAM=	14.20	BA=	1.09	CUFT=	23.69	VBAR=	21.73	DIST=	10.3;
DIAM=	13.30	BA=	0.96	CUFT=	20.18	VBAR=	21.02	DIST=	15.6;

SUM VBAR SQUARED = 4664.88

RUNNING TOTAL VBAR SQUARED = 33922.64

SAMPLE POINT COORDINATES ARE 1212.0 1510.0

DIAM=	12.90	BA=	0.90	CUFT=	18.73	VBAR=	20.81	DIST=	3.1;
DIAM=	12.70	BA=	0.87	CUFT=	18.03	VBAR=	20.72	DIST=	15.0;

SUM VBAR SQUARED = 1724.74

RUNNING TOTAL VBAR SQUARED = 35647.38

SAMPLE POINT COORDINATES ARE 1212.0 1715.0

DIAM=	5.30	BA=	0.15	CUFT=	2.34	VBAR=	15.60	DIST=	5.4;
DIAM=	14.10	BA=	1.08	CUFT=	23.28	VBAR=	21.55	DIST=	9.2;

SUM VBAR SQUARED = 1380.12

RUNNING TOTAL VBAR SQUARED = 37027.50

SAMPLE POINT COORDINATES ARE 1349.0 1100.0

DIAM=	14.60	BA=	1.16	CUFT=	25.37	VBAR=	21.87	DIST=	19.1;
DIAM=	15.00	BA=	1.22	CUFT=	27.12	VBAR=	22.22	DIST=	16.2;
DIAM=	12.90	BA=	0.90	CUFT=	18.73	VBAR=	20.81	DIST=	5.2;
DIAM=	15.30	BA=	1.27	CUFT=	28.49	VBAR=	22.43	DIST=	20.4;

SUM VBAR SQUARED = 7626.52

RUNNING TOTAL VBAR SQUARED = 44654.02

SAMPLE POINT COORDINATES ARE 1349.0 1305.0

DIAM=	10.60	BA=	0.61	CUFT=	11.66	VBAR=	19.11	DIST=	13.9;
DIAM=	12.70	BA=	0.87	CUFT=	18.03	VBAR=	20.72	DIST=	18.7;
DIAM=	19.80	BA=	2.13	CUFT=	54.43	VBAR=	25.55	DIST=	12.0;
DIAM=	11.70	BA=	0.74	CUFT=	14.78	VBAR=	19.97	DIST=	12.6;

SUM VBAR SQUARED = 7284.62

RUNNING TOTAL VBAR SQUARED = 51938.64

SAMPLE POINT COORDINATES ARE 1349.0 1510.0

DIAM=	6.10	BA=	0.20	CUFT=	3.22	VBAR=	16.10	DIST=	8.0;
DIAM=	15.50	BA=	1.31	CUFT=	29.42	VBAR=	22.45	DIST=	16.9;

```
SUM VBAR SQUARED =          1486.10

RUNNING TOTAL VBAR SQUARED =                    53424.74

SAMPLE POINT COORDINATES ARE                    1349.0          1715.0
DIAM=    5.90           BA=    0.18    CUFT=     2.98    VBAR=   16.55    DIST=     8.0;
DIAM=    6.30           BA=    0.21    CUFT=     3.46    VBAR=   16.47    DIST=     9.6;
DIAM=    6.70           BA=    0.24    CUFT=     3.99    VBAR=   16.62    DIST=     8.9;

SUM VBAR SQUARED =          2464.12

RUNNING TOTAL VBAR SQUARED =                    55888.86

SAMPLE POINT COORDINATES ARE                    1485.0          1100.0
DIAM=   15.70           BA=    1.34    CUFT=    30.37    VBAR=   22.66    DIST=    15.8;
DIAM=   10.60           BA=    0.61    CUFT=    11.66    VBAR=   19.11    DIST=    13.0;
DIAM=   17.40           BA=    1.65    CUFT=    39.27    VBAR=   23.80    DIST=     6.2;
DIAM=   13.10           BA=    0.93    CUFT=    19.44    VBAR=   20.90    DIST=     9.5;

SUM VBAR SQUARED =          7477.06

RUNNING TOTAL VBAR SQUARED =                    63365.92

SAMPLE POINT COORDINATES ARE                    1485.0          1305.0
DIAM=   15.30           BA=    1.27    CUFT=    28.49    VBAR=   22.43    DIST=    12.9;
DIAM=   15.40           BA=    1.29    CUFT=    28.95    VBAR=   22.44    DIST=    14.4;

SUM VBAR SQUARED =          2013.31

RUNNING TOTAL VBAR SQUARED =                    65379.23

SAMPLE POINT COORDINATES ARE                    1485.0          1510.0
DIAM=   10.30           BA=    0.57    CUFT=    10.89    VBAR=   19.10    DIST=     1.4;
DIAM=   17.60           BA=    1.68    CUFT=    40.41    VBAR=   24.05    DIST=    18.7;
DIAM=   10.80           BA=    0.63    CUFT=    12.19    VBAR=   19.34    DIST=    12.6;

SUM VBAR SQUARED =          3905.00

RUNNING TOTAL VBAR SQUARED =                    69284.23

SAMPLE POINT COORDINATES ARE                    1485.0          1715.0
DIAM=    7.00           BA=    0.26    CUFT=     4.41    VBAR=   16.96    DIST=    10.8;
DIAM=   10.90           BA=    0.64    CUFT=    12.46    VBAR=   19.46    DIST=    10.6;

SUM VBAR SQUARED =          1326.41

RUNNING TOTAL VBAR SQUARED =                    70610.64
A=      31.31           B=     12.94;


TOTAL NUMBER OF TREES SAMPLED =                  49

AVERAGE TREE COUNT =        3.06

SUM VBAR =                1005.06

AVERAGE VBAR=               20.51

BASAL AREA PER ACRE =       91.87
```

AVERAGE VOLUME PER ACRE = 1884.25

TOTAL VOLUME IN CUBIC FEET = 21800.77

CVTC= 31.31 STDETC= 0.95 STDEVBR= 2.65 CVVBAR= 12.94;

STANDARD ERROR = 167.44

SAMPLING ERROR % = 8.88

COEFF. OF VARIATION % = 35.51

STANDARD ERROR OF MEAN TREE COUNT = 0.24

STANDARD ERROR OF MEAN VBAR = 0.38

SAMPLING ERROR OF TREE COUNT % = 7.83

SAMPLING ERROR OF VBAR % = 1.85

COMBINED SAMPLING ERROR TC & VBAR % = 8.04

OPTIMUM NUMBER OF TREE COUNT POINTS = 19.60
OPTIMUM NUMBER MEASUREMENT POINTS = 1.09

RATIO OF TREE COUNT POINTS TO MEASUREMENT POINTS IS 18 TO 1

PRACTICAL NUMBER OF TREE COUNT POINTS IS 14.00
PRACTICAL NUMBER OF MEASUREMENT POINTS IS 2.00

COST FOR COMBINED SAMPLING ERROR OF 10%

OPTIMUM COST = 19.46

PRACTICAL COST = 16.78

BAF= 40;

SAMPLE POINT COORDINATES ARE 1075.0 1100.0

DIAM=	17.20	BA=	1.61	CUFT=	38.14	VBAR=	23.68	DIST=	22.8;
DIAM=	5.20	BA=	0.14	CUFT=	2.25	VBAR=	16.07	DIST=	5.5;
DIAM=	22.00	BA=	2.63	CUFT=	71.26	VBAR=	27.09	DIST=	10.7;
DIAM=	7.90	BA=	0.34	CUFT=	5.83	VBAR=	17.14	DIST=	10.7;

SUM VBAR SQUARED = 7052.64

RUNNING TOTAL VBAR SQUARED = 7052.64

SAMPLE POINT COORDINATES ARE 1075.0 1305.0

DIAM=	13.30	BA=	0.96	CUFT=	20.18	VBAR=	21.02	DIST=	13.7;
DIAM=	12.00	BA=	0.78	CUFT=	15.71	VBAR=	20.14	DIST=	4.4;
DIAM=	13.60	BA=	1.00	CUFT=	21.31	VBAR=	21.31	DIST=	11.8;

SUM VBAR SQUARED = 3902.50

RUNNING TOTAL VBAR SQUARED = 10955.14

SAMPLE POINT COORDINATES ARE 1075.0 1510.0

DIAM=	8.20	BA=	0.36	CUFT=	6.36	VBAR=	17.66	DIST=	8.6;

SUM VBAR SQUARED = 311.87

RUNNING TOTAL VBAR SQUARED = 11267.01

SAMPLE POINT COORDINATES ARE 1075.0 1715.0

DIAM=	8.70	BA=	0.41	CUFT=	7.30	VBAR=	17.80	DIST=	3.9;
DIAM=	10.70	BA=	0.62	CUFT=	11.92	VBAR=	19.22	DIST=	6.2;
DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST=	16.1;

SUM VBAR SQUARED = 3638.50

RUNNING TOTAL VBAR SQUARED = 14905.51

SAMPLE POINT COORDINATES ARE 1212.0 1100.0

DIAM=	6.70	BA=	0.24	CUFT=	3.99	VBAR=	16.62	DIST=	5.8;
DIAM=	13.80	BA=	1.03	CUFT=	22.08	VBAR=	21.43	DIST=	12.7;
DIAM=	14.80	BA=	1.19	CUFT=	26.24	VBAR=	22.05	DIST=	20.0;
DIAM=	16.70	BA=	1.52	CUFT=	35.43	VBAR=	23.30	DIST=	19.4;

SUM VBAR SQUARED = 6955.55

RUNNING TOTAL VBAR SQUARED = 21861.06

SAMPLE POINT COORDINATES ARE 1212.0 1305.0

DIAM=	14.20	BA=	1.09	CUFT=	23.69	VBAR=	21.73	DIST=	10.3;
DIAM=	13.30	BA=	0.96	CUFT=	20.18	VBAR=	21.02	DIST=	15.6;

SUM VBAR SQUARED = 1827.56

RUNNING TOTAL VBAR SQUARED = 23688.62

SAMPLE POINT COORDINATES ARE 1212.0 1510.0

DIAM=	12.90	BA=	0.90	CUFT=	18.73	VBAR=	20.81	DIST=	3.1;
DIAM=	12.70	BA=	0.87	CUFT=	18.03	VBAR=	20.72	DIST=	15.0;

SUM VBAR SQUARED = 1724.74

RUNNING TOTAL VBAR SQUARED = 25413.36

SAMPLE POINT COORDINATES ARE 1212.0 1715.0

DIAM=	5.30	BA=	0.15	CUFT=	2.34	VBAR=	15.60	DIST=	5.4;
DIAM=	14.10	BA=	1.08	CUFT=	23.28	VBAR=	21.55	DIST=	9.2;

SUM VBAR SQUARED = 1380.12

RUNNING TOTAL VBAR SQUARED = 26793.48

SAMPLE POINT COORDINATES ARE 1349.0 1100.0

DIAM=	14.60	BA=	1.16	CUFT=	25.37	VBAR=	21.87	DIST=	19.1;
DIAM=	15.00	BA=	1.22	CUFT=	27.12	VBAR=	22.22	DIST=	16.2;
DIAM=	12.90	BA=	0.90	CUFT=	18.73	VBAR=	20.81	DIST=	5.2;
DIAM=	15.30	BA=	1.27	CUFT=	28.49	VBAR=	22.43	DIST=	20.4;

SUM VBAR SQUARED = 7626.52

RUNNING TOTAL VBAR SQUARED = 34420.00

SAMPLE POINT COORDINATES ARE 1349.0 1305.0

DIAM=	10.60	BA=	0.61	CUFT=	11.66	VBAR=	19.11	DIST=	13.9;
DIAM=	19.80	BA=	2.13	CUFT=	54.43	VBAR=	25.55	DIST=	12.0;
DIAM=	11.70	BA=	0.74	CUFT=	14.78	VBAR=	19.97	DIST=	12.6;

SUM VBAR SQUARED = 4177.03

RUNNING TOTAL VBAR SQUARED = 38597.03

SAMPLE POINT COORDINATES ARE 1349.0 1510.0

DIAM=	6.10	BA=	0.20	CUFT=	3.22	VBAR=	16.10	DIST=	8.0;
DIAM=	15.50	BA=	1.31	CUFT=	29.42	VBAR=	22.45	DIST=	16.9;

SUM VBAR SQUARED = 1486.10

RUNNING TOTAL VBAR SQUARED = 40083.13

SAMPLE POINT COORDINATES ARE 1349.0 1715.0

DIAM=	5.90	BA=	0.18	CUFT=	2.98	VBAR=	16.55	DIST=	8.0;
DIAM=	6.70	BA=	0.24	CUFT=	3.99	VBAR=	16.62	DIST=	8.9;

SUM VBAR SQUARED = 1100.24

RUNNING TOTAL VBAR SQUARED = 41183.37

SAMPLE POINT COORDINATES ARE 1485.0 1100.0

DIAM=	15.70	BA=	1.34	CUFT=	30.37	VBAR=	22.66	DIST=	15.8;
DIAM=	10.60	BA=	0.61	CUFT=	11.66	VBAR=	19.11	DIST=	13.0;
DIAM=	17.40	BA=	1.65	CUFT=	39.27	VBAR=	23.80	DIST=	6.2;
DIAM=	13.10	BA=	0.93	CUFT=	19.44	VBAR=	20.90	DIST=	9.5;

SUM VBAR SQUARED = 7477.06

RUNNING TOTAL VBAR SQUARED = 48660.43

SAMPLE POINT COORDINATES ARE 1485.0 1305.0

DIAM=	15.30	BA=	1.27	CUFT=	28.49	VBAR=	22.43	DIST=	12.9;
DIAM=	15.40	BA=	1.29	CUFT=	28.95	VBAR=	22.44	DIST=	14.4;

SUM VBAR SQUARED = 2013.31

RUNNING TOTAL VBAR SQUARED = 50673.74

SAMPLE POINT COORDINATES ARE 1485.0 1510.0

DIAM=	10.30	BA=	0.57	CUFT=	10.89	VBAR=	19.10	DIST=	1.4;
DIAM=	17.60	BA=	1.68	CUFT=	40.41	VBAR=	24.05	DIST=	18.7;
DIAM=	10.80	BA=	0.63	CUFT=	12.19	VBAR=	19.34	DIST=	12.6;

SUM VBAR SQUARED = 3905.00

RUNNING TOTAL VBAR SQUARED = 54578.74

SAMPLE POINT COORDINATES ARE 1485.0 1715.0

DIAM=	10.90	BA=	0.64	CUFT=	12.46	VBAR=	19.46	DIST=	10.6;

SUM VBAR SQUARED = 378.69

RUNNING TOTAL VBAR SQUARED = 54957.43
A= 38.07 B= 12.83;

TOTAL NUMBER OF TREES SAMPLED = 42

AVERAGE TREE COUNT = 2.62

SUM VBAR = 866.23

AVERAGE VBAR= 20.62

BASAL AREA PER ACRE = 105.00

AVERAGE VOLUME PER ACRE = 2165.10

TOTAL VOLUME IN CUBIC FEET = 25050.20

CVTC= 38.07 STDETC= 1.00 STDEVBR= 2.65 CVVBAR= 12.83;

STANDARD ERROR = 231.80

SAMPLING ERROR % = 10.70

COEFF. OF VARIATION % = 42.79

STANDARD ERROR OF MEAN TREE COUNT = 0.25

STANDARD ERROR OF MEAN VBAR = 0.41

SAMPLING ERROR OF TREE COUNT % = 9.52

SAMPLING ERROR OF VBAR % = 1.98

COMBINED SAMPLING ERROR TC & VBAR % = 9.72

OPTIMUM NUMBER OF TREE COUNT POINTS = 28.98
OPTIMUM NUMBER MEASUREMENT POINTS = 1.25

RATIO OF TREE COUNT POINTS TO MEASUREMENT POINTS IS 23 TO 1

PRACTICAL NUMBER OF TREE COUNT POINTS IS 22.00
PRACTICAL NUMBER OF MEASUREMENT POINTS IS 2.00

COST FOR COMBINED SAMPLING ERROR OF 10%

OPTIMUM COST = 23.63

PRACTICAL COST = 20.68

```
END JOB  13                    AAAAA
END JOB  13                   A     A
END JOB  13                   A     A
END JOB  13                   A     A
                              AAAAAAA
                              A     A
  1.26.13 PM                  A     A
  1.26.13 PM                  A     A
  1.26.13 PM                  A     A
  1.26.13 PM

10 MAR 77                      99999     88888     22222       1        KASILE
10 MAR 77                     9     9   8     8   2     2     11        KASILE
10 MAR 77                     9     9   8     8         2    1 1        KASILE
10 MAR 77                     9     9   8     8         2      1        KASILE
                               999999   88888         2      1        KASILE
                                    9   8     8     222       1
                                    9   8     8    2          1
                              9     9   8     8   2           1
                               99999    88888   2222222   1111111
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